The Chemical Age

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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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A Money Bill

THE Safeguarding of Industries Bill—an omnibus measure dealing with the protection of new key industries (including all synthetic organic chemicals), with the dumping of foreign goods on the British market, and with the problem of collapsed exchanges—passed its third reading in the House of Commons on Friday, August 12. The majority was 122 on a total vote of 230—a figure which itself indicates the general indifference of the House to such important commercial proposals. The passage of the Bill is thus assured, for the Speaker's ruling that the measure is a money bill deprives the House of Lords of any effective power of resistance, even if the Lords were prepared for a fight. The House of Lords can neither amend nor reject the measure, as will be seen from the following provision in the Parliament Act:—

> If a money bill, having been passed by the House of Commons and sent up to the House of Lords at least one month before the end of the session, is not passed by the House of Lords without amendment within one month after it is so sent up to the House, the bill shall, unless the House of Commons direct to the contrary, be presented to his Majesty, and become an Act of Parliament on the Royal assent being signified, notwithstanding that the House of Lords have not consented to the bill.

The Lords, however, have amended the Bill in minor points, apparently on the ground that the time condition has not been complied with, but their opposition is regarded by authorities on Parliamentary practice as merely a demonstration. The date from which the Bill will begin to operate has not yet been definitely fixed, but Mr. Stanley Baldwin recently gave an undertaking that in no case should the date be earlier than September 30. It may be safely assumed that it will not be very much later.

The complex character of the measure is largely responsible for the mental confusion it has produced. It is defended by Free Traders on the ground that it involves no desertion of Free Trade principles; it is welcomed by Tariff Reformers because to them it marks a definite break with our Free Trade tradition. It is so mixed in its interests and aims that it is not easy to give a simple and unqualified judgment either for or against. Take, for example, the case of new industries established during the war, at the urgent appeal of the Government and with the object of meeting national needs. A fairer and clearer statement of the position could hardly be desired than that of Mr. Moncrieff, the chairman of the North British Glass Works at Perth, which we quote on another page. In this case the company, under the instigation of the Government, extended their works, invested new capital, and prepared to lay the basis of a permanent industry. They did so on the assumption that for a period reasonably long enough to enable them to make good they would be guaranteed in their position against enemy competition. It is impossible to resist such a claim, without an open breach of faith. We believe there is a general desire that the Government should keep faith in such cases. If the Government could show that their proposals would, with reasonable certainty, secure the future safety of such industries and protect the workers against unemployment, no opposition worth mentioning could be organised against them. But will the Bill do this? Is the Dyestuffs Act doing it for the dyestuffs industry? That is a question which sets people pondering, for if the Government plans fail the country will have made serious sacrifices for no purpose. The position at the best is highly experimental. The most hopeful can only wait and see.

When we come to consider the trader and the consumer, the case is quite clear. However problematical the advantages may be to the manufacturer, the taxes on other people are assured. The importer will pay 33⅓ per cent. more, under the key industries section alone, for competing products, and assuredly

this will ultimately fall on the consumer. Will the increase in price be sufficient to turn the purchaser from the foreign to the British product? There, again, experience must decide. If it fails to do so, the Act will have failed as a protection against foreign competition. In addition to price, there is the essential question of quality. For a time we believe the public, in the case of *bona fide* new industries employing British workmen and guaranteeing internal supplies of essential goods, would be prepared to pay more for British products than for foreign. But we are sure they would not be prepared to buy inferior products. Equal quality is an indispensable condition, and the onus is thus thrown on British industries of producing goods of equal standard, whatever the price may be. No protection can safeguard inefficiency.

In its economic aspects the Bill is an experiment. The Government had entered into pledges, and we do not see how they could honourably evade them. Whether they have chosen the best methods of redeeming their pledges is another matter, but they have made their choice and we must await results. In one respect, however, the measure will be viewed with general disfavour, namely, in the large powers of administration which it hands over to departmental officials. Government by departments and departmental committees has not grown in favour as the result of our war experiences, and the dream that British industry can flourish only under the regimental rule of the Board of Trade is one from which there may be a rude awakening.

The U.S.A. Chemical Tariff

THE proposed new United States Customs tariff is now undergoing final discussion in the Senate, but the Board of Trade has published in part the text of the document as passed by the House of Representatives on July 21. The first schedule in the Dutiable List includes chemicals, oils and paints, and gives the various *ad valorem* and other duties to which each article or class of articles is subject. What is known as the dyestuffs embargo (paragraph 27) was deleted by the House of Representatives; at the moment it is not known whether the Senate will restore it. If it does, then for a period of three years no foreign dyestuffs (except samples) such as are obtainable in the United States on reasonable terms as to quality, price and delivery, will be admissible, and even as regards dyestuffs not obtainable in the United States foreign products will only be allowed in small quantities and under very strict conditions.

Even, however, if the embargo is not restored, the Tariff is a formidable document, and deserves the careful study of chemical merchants. The chemical schedule consists of 88 paragraphs containing classified lists of chemicals, with the detailed duties attaching to them. The longest paragraphs are 25 and 26, relating to coal tar products. Paragraph 25 covers a large number of products not suitable for medicinal use, the duty on which is 30 per cent. *ad valorem* and 7 cents per lb. Paragraph 26 contains many of the same substances, but suitable for medicinal use, and in addition all colours, dyes, or stains, colour acids, colour bases, colour lakes, &c. Under the head of "coal tar products" in this paragraph are also to be found "natural alizarin and natural indigo," and the colours, &c., wholly or partly obtained from them, as well as other natural substances. On these articles the tax is 35 *ad valorem* and 7 cents per lb. The Dutiable List also covers dyeing and tanning extracts, including "preparations of vegetable origin" and natural and synthetic fruit flavours, essences, &c. Under the general head of potassium the rates vary for different products, and there is a general provision that for a period of five years after the passing of the Act all the articles mentioned shall be subject to an additional duty of 15 per cent. *ad valorem*.

The Tariff includes a Free List as well as a Dutiable List, but it is not always easy to reconcile the two. Even where articles are named in the Free List, the effect is frequently neutralised by the words "not specially provided for." Thus paragraph 1,563 mentions as free goods "all articles of vegetable origin used for dyeing," and this might naturally be taken to include such products as natural indigo, which, however, appears in the Dutiable List subject to a tax of 35 per cent. *ad valorem* and 7 cents per lb. Potassium chloride, potassium sulphate, kainit, wood ashes and beet root ashes and all crude potash salts not specially provided for also appear in the Free List, with the qualification, however, that for five years after the passing of the Act there shall be paid on the actual potash content a duty of 2½ per cent. per lb. for the first two years, 2 cents for the third year, 1½ cents for the fourth year and 1 cent for the fifth. By that time presumably the American potash industry will be able to hold its own.

The administrative provisions give very wide and drastic powers to the United States Customs authorities. The value of imported merchandise is taken to mean "the price on the date of exportation at which comparable and competitive products of the United States were ordinarily sold or freely offered for sale in the usual wholesale quantities." The value is to be determined on this principle by the United States appraisers, who are given powers to demand very full particulars as to when and where and from whom the goods were purchased and the purchase price, while in some cases a declaration may be required of the cost of production. The whole intention is to develop United States manufacture by keeping out foreign products and compelling the home merchant and consumer to purchase United States productions. Obviously it will proportionately restrict the United States market against British exporters.

Departmental "Shopkeeping"

THE policy of the Board of Trade is sharply challenged in a letter which the Chemical and Dyestuff Traders' Association have addressed to the President (Mr. Stanley Baldwin), protesting against the Board's "direct intervention into the business of importing and distributing dyestuffs." The facts as laid before the President are that, up to June 30, out of over 4,000 tons of reparation dyestuffs imported, the Board had disposed of a little over 1,000 tons; that where

sales on behalf of the Board take place, they are effected through what is grandiosely termed the Central Importing Agency—in plainer words, a Manchester firm which acts as merchant-agent for the Board; that the Licensing Committee refuse to grant import licences for colours included in the Board of Trade's stocks, and that applicants are directed to apply to the C.I.A. for their supplies, instead of obtaining them from their usual commercial sources; and that the Licensing Committee's policy of demanding the names of applicants' customers "enables the Board of Trade, as importers and distributors of dyestuffs, to collect information as to the customers usually supplied by merchants, and to approach such customers direct though the C.I.A."

It is clear from the terms and tone of Mr. Baldwin's reply that he has little, if any, first-hand opinions on the matter, and is merely repeating the official view. More could hardly be expected, since, under the game of "general post," as played by members of the Government, Ministerial heads of departments are here to-day and gone to-morrow—mere birds of passage in the eyes of the permanent staff. There are three points in his reply to be briefly noted. The first is his explanation of the Board's large unsold stocks on the ground of trade depression. Here is the naïvest confession that the dyestuffs industry, already depressed enough, is further depressed by a kind of "dumping" policy on the part of the Board of Trade itself, which imports colours vastly in excess of the current demand, and then adds to the trader's difficulties by competing with him for what little trade exists. Every order the Board of Trade secures deprives some tax-paying and labour-employing trader of a corresponding slice of business. And we have no evidence as to the customer's experience in quality and price.

Secondly, as to the demand for customers' names, Mr. Baldwin has nothing more to say than that the names are not communicated to the C.I.A. or otherwise used for approaching consumers in competition with *bonâ fide* merchants. But the Board of Trade is, under this system, in possession of what traders regard as confidential information, and the merchant class very naturally resent having to deliver up jealously guarded trade secrets in this fashion. It is not the actual employment of, but the power to employ, such information that constitutes the grievance. The traders' uneasiness is increased by the fact that they are deliberately excluded from the Committee which determines these questions. Finally, Mr. Baldwin accepts without a murmur the unprecedented action of a Government department in opening shop in opposition to business houses. Bureaucratic control of trade has become so confident in its position that even the need of verbal defence is dispensed with.

There seems to be only one method of effective appeal in such matters. When individual members of Parliament and the Ministry itself are made to realise that the sympathies of the whole commercial class are being alienated and converted into active political opposition, they may begin to assert their position as the masters, and not the servants, of the departments they are suffered to control.

The Threatened Chemical Strike

AT a time when everyone is hoping for a return of prosperity to the chemical industry, the threat of the chemical workers to cease work on August 27 is really disheartening. As the result of a ballot on the employers' proposal to reduce wages 2d. an hour, 10,510 men voted against acceptance, and only 434 for. It is true that this leaves about 19,000 workers unaccounted for, and, since they did not trouble to vote, it may be inferred that they are not much concerned in the issue, one way or the other. But among those who did vote the size of the majority is significant. On the strength of the ballot, a resolution has been adopted by the Federation of Chemical Workers to give the employers notice that work will cease on August 27 failing a satisfactory adjustment of wages in the meantime. The first reply to this comes from Brunner, Mond & Co., who announce that unless a sufficient number of men remain at work to enable manufacture to be carried on the works will be closed as from August 27. Efforts will, no doubt, be made to reach a settlement, and it is much to be hoped that they will succeed, in the interest of all concerned in the chemical industry.

The Calendar

Aug. 29	Society of Chemical Industry: Annual General Meeting. 11 a.m.	McGill University, Montreal, Canada.
Sept. 5–6	Iron & Steel Institute: Autumn Meeting	Comité des Forges de France, 7, Rue de Madrid, Paris.
7–14	British Association for the Advancement of Science: 89th Meeting; Presidential Address by Sir Edward Thorpe.	Edinburgh.
Sept. 19–Oct. 29	Royal Photographic Society of Great Britain: 66th Annual Exhibition.	35, Russell Square, London.
Sept. 21–23	Institute of Metals: Annual Meeting	Birmingham.
28	Faraday Society: General Discussion on "Catalysis with Special Reference to Newer Theories of Chemical Action."	—
Oct. 5	Chemical Industries Club: Addressed by Sir William J. Pope, K.B.E.	London.
7	Society of Chemical Industry: Annual Dinner	Connaught Rooms, Kingsway, London.
8	Mining Institute of Scotland: General Meeting.	Edinburgh.

Books Received

POWER PLANT. INSTALLATION, UPKEEP AND ECONOMICAL OPERATION. By T. Roland Wollaston. Manchester: Sherratt & Hughes. Pp. 117.

INDUSTRIAL AND POWER ALCOHOL. By R. C. Farmer. (London: Sir Isaac Pitman & Sons, Ltd.) Pp. 110. 2s. 6d. net.

Co-operative Societies and Research

[From a Correspondent.]

The Co-Operative Wholesale Society (the C.W.S.) in this country, although originally limiting its activities almost entirely to distribution, has, within recent years, made very considerable strides in the actual production and manufacture of goods. It now owns several large factories as well as agricultural estates, and is constantly extending its operations. Among these are three important soap factories and a margarine works, and in 1917 a research department was organised in connexion with these works, with Dr. Geoffrey Martin in charge. The work at first was largely analytical and concerned with the testing of raw materials and products rather than original research, but substantial progress was subsequently made in actual research. The analytical department now deals with about 3,000 samples per annum, and although the same rigorous control of fuel and water, such as is exercised by large private firms, has not yet been achieved, every effort is being made to attain the desired end.

Dr. Martin recently gave an interesting account of the work being done, in the course of which he stated that the most pressing problems were dealt with in order of urgency, foremost among these being the maintenance of a thoroughly reliable and good quality milk supply. This was placed on a satisfactory footing by rigorous tests and analysis, but not content with this the department turned its attention to the manufacture of milk products and claims to have worked out a process for making an infant's food similar to Glaxo, but much superior in taste, solubility and vitamine content. As is well known by now, the problem of retaining the valuable vitamine properties of accessory factors of the original raw milk in the dried product is a difficult one, for the degree of resistance of these vitamines to heat treatment is not yet definitely decided. Therefore, if the C.W.S. has really succeeded in producing a dried milk product which is found to be rich in vitamines after careful and thorough biological or actual feeding tests, then the research department is to be congratulated. It is understood that the new preparation is protected by patents. In addition to dried milk a process was also worked out for the manufacture of a condensed milk, sweetened, which is also claimed to be rich in vitamines, and superior to other makes. No details are, however, given of the presumably elaborate feeding tests on which such a claim must be based, nor whether the particular vitamines are water-soluble (w.s. A) or fat-soluble (f.s. B) or anti-scorbutic, or all three combined. It is merely stated that the process is a rapid-continuous one and cheaper in operation, especially as regards fuel costs, than the ordinary process; also that the experiments were carried out at Rochester. Presumably these are the process experiments and not feeding tests. A further problem in what may be called dairy research was the disposal of the whey from the cheese factories. Dr. Martin says that this became such a public nuisance that it led to the temporary closing of the cheese factory at Bruton, and to serious complaints of stream pollution at Basford Bridge and Overton. This material was dealt with by a special process, the chief feature of which was drying, and converted into a food product, and it is claimed that it can be introduced into flour and yields a kind of brown bread superior in taste and nourishing qualities.

The three C.W.S. soap factories have, on the whole, had a fairly successful career so far, in view of the severe competition they have had to face. In order to secure an independent source of raw material (oils and fats) for these factories the directors of the C.W.S. endeavoured some years ago to secure oil palm concessions and plantations in West Africa, but it is not known what success or otherwise attended these efforts. In the difficult problems of oil refining and hydrogenation (fat-hardening) the research department of the C.W.S. carried out a great deal of work, and as a result of two and a half years of strenuous work and the expenditure of £3,000 it claims to have worked out a complete process for making a refined edible oil "superior to any now on the market." The directors were thus "saved the expense of £60,000 in buying a secret process for the same purpose." The results of the fat-hardening research were apparently less happy, for although a process and plant were patented no room could be found anywhere for installing the apparatus. In the disposal of the waste lime from the soap works a drying process was evolved whereby it was possible to dry the lime at a maximum cost of 6s. 6d. per ton, and the dried product was bought by farmers for 36s. 6d. or more, leaving a profit of 30s. per ton, or nearly £40,000 in four years. The chief boast of the co-operative organisation in this country is that it "makes for use" and not for "profit." It is continually condemning the "capitalist" class and seeks to abolish what it calls capitalism and working for profit. It is rather difficult to reconcile this sublime and altruistic policy with the selling of lime at a profit of 400 per cent., especially to farmers. Presumably some of the farmers may be members and get their money back in dividends. In any case, one would like to hear their views on the price of this lime in view of its cost to make.

The research department succeeded in working out processes for refining and deodorising cocoa-butter, which was also regarded hitherto as a waste product by the C.W.S. A refining plant was installed at the Crumpsall Biscuit Works and the high-grade fat produced was used in the manufacture of biscuits, and these works "were enabled to produce more than £40,000 worth of biscuits at a time when no other firm could make biscuits of this quality owing to the failure of ordinary fats."

Other works carried out included leather research and the evolution of new tanning processes; new dyes for leather dyeing and general household use; the manufacture of acid calcium phosphate for baking powder, for which an entirely new factory was designed. About seventeen patents—one every three months on an average—have been taken out to cover the new processes completed. The research department now includes an information bureau and technical library and the staff comprises nearly two dozen chemists, beside chemical engineers and draughtsmen. It is hoped to provide more extensive premises at no very distant date, the present premises at Balloon Street, Manchester, being inadequate for the C.W.S. ambitious research programme.

Society of Chemical Industry

Meetings of the Manchester Section

The syllabus for the 1921-1922 Session states that the meetings of the Manchester Section will be held on the first Friday of the month, commencing on October 7, at the Textile Institute, 16, St. Mary's Parsonage. On October 7, the chairman (Dr. E. Ardern) will deliver an address on "The Disposal of Waste Liquors," and an exhibition of chemicals, apparatus, plant, &c., will be open from 2 p.m. until 10 p.m.

At the second meeting on November 4, Dr. H. T. Bush will give a paper on "Electrical Precipitation," while on December 2 "A Note on the Direct Titration of Alkaline Manganates," by Dr. J. J. Bloch, and "Heat Balance on Producer Plant," by Mr. H. H. Norris, B.Sc., F.I.C., will be read. The annual dinner of the Section is to be held on December 14 at the Popular State Café, Piccadilly, Manchester. For the first meeting of the new year the Manchester Sections of the Society of Chemical Industry, the Institute of Chemistry, the Society of Dyers and Colourists, and the Manchester Literary and Philosophical Society have made joint arrangements for an address by Professor A. Harden, D.Sc., F.R.S., on "Bio-Chemical Method."

On February 3, papers on "The Estimation of the Nitro Group in Aromatic Organic Compounds, Part 2," and "The Use of Potassium Bromate in Volumetric Organic Analysis," both by Dr. T. Callan and Dr. J. A. Russell Henderson will be read. "A Contribution to the Study of the Oxidation of Coal," by Capt. F. S. Sinnatt, F.I.C., and "On a Cause of Splitting of a Pottery Material," by Mrs. M. B. Craven, are down for March 3, followed on March 9 by the annual supper of the Section. The annual general meeting will take place on April 5, when Professor J. S. S. Brame will deliver a paper on "Oil Fuel: Its Applications and Economic Limitations." At the meeting on May 5, Mr. R. A. Bellwood will read a paper on the "Progress of Oil Extraction and Kindred Trades." Other papers have been promised and will be announced later.

Exports of nitrate of soda from Chile to the United States from January 1 to June 1 amounted to 235,700 tons, against 715,350 tons for the same period last year.

"Complete Cycle" Processes

By "Latex"

THE bearing of the research department of a works on the chemical engineering activities determines the possibility of evolving a "complete cycle" process from a more or less intermittent one. In such a cyclic process there is no wastage of raw material or power other than the inevitable difference between theoretical and practical usage. For example, a theoretical yield of a product is obviously almost impossible where possibility of breakdown, leakage, &c., occurs. It is the function of the research department to reduce the possibility of "losses" to a minimum. The economical working up of effluents, by-products, and heat and power conservancy are outstanding factors which pure science can only deal with when approached by the chemical engineering staff. Co-operation between these two departments is, therefore, essential to the successful development of the industry.

It is the ideal of any chemical process to evolve a method whereby all reactions (whether purely chemical or whether heat or power is involved) are so developed as to return previously wasted products to the process or to produce them as a saleable product.

As an example of a "cycle" operation process, recent advances in the separation of phenols and tar acids from tar oils may be cited as an illustration of a process whereby each by-product or waste material is made use of in an economic manner.

In the old process of separation caustic soda was generally manufactured by the reaction between lime and soda ash. The oil containing the phenols was then washed by agitation with compressed air, and the resulting solution of sodium phenate was "sprung" with sulphuric acid. The oily aqueous layer of phenols was then dehydrated by the addition of further concentrated sulphuric acid, and finally treated by distillation. The sodium sulphate liquor was then run to waste.

The losses on such a process may be shown graphically as follows :—

Lime+soda ash+steam agitation
↓ (loss)
treated with
Weak caustic soda+calcium carbonate
↓ (loss)
give
Concentrated caustic soda+use of steam
↓ (loss)
treated with
Tar oil+caustic soda+air (loss)
↓
give
Sodium phenate+free oil
↓
treated with
Sodium phenate+Sulphuric acid
↓
give
Phenols+sodium sulphate (loss)

Phenols+conc. H_2SO_4 give finished crude phenol+Na_2SO_4 (loss).

It will thus be seen that both sulphuric acid and soda ash are completely lost, together with a small percentage of phenols sulphonated after contact with the sulphuric acid.

The new method of manufacturing gives a convincing idea of a cyclic operation, shown thus :—

(1) Lime+sodium carbonate liquor
↓
give
(2) Dilute caustic soda with steam
↓
give
(3) Concentrated caustic soda.
↓
(4) Tar oil+caustic soda in reaction tower (no air)
gives
↓
(5) Sodium phenate+free oil
↓
gives
(6) Sodium phenate+CO_2 (self agitating)
↓
gives
(7) Phenols+sodium carbonate.
↓
(1) Lime+sodium carbonate gives caustic soda, &c.
(2), (3), &c., completing the cycle.

Side by side with the main operation another cyclic process takes place, disposing of the lime loss, and generating CO_2, thus :

(1) Lime+soda, carbonate gives calcium carbonate+caustic soda
which gives
↓
(2) $CaCO_3$; heated with a small amount of coke (loss)
gives
↓
(3) Gaseous CO_2, which reacts with the phenolate of soda solution and quicklime, which returns to the causticiser as seen in reaction (1).

It will thus be seen that the main loss of sulphuric acid and soda is entirely obviated, and power as compressed air is saved in two agitating processes when reaction towers acted as self-agitators.

Slight losses occur, due to the difference in practical and theoretical absorption of CO_2 by sodium phenate, resulting in a small loss of CO_2. There is also a loss in the generation of the CO_2 and burning of the calcium carbonate, since only part of the calcium carbonate mud can be dried by the heating of the calcining operation, and it is expedient to use a certain quantity of coke in the furnace to start the process and give initial heat. This is a very cheap proposition, however, compared with the loss of soda as sodium sulphate. Indeed, the precipitated chalk is often made use of in other directions, and coke only is used for generating CO_2.

There is always a distinct loss of the sodium carbonate liquor returned to the causticising plant. Obviously if no such loss were experienced, there would be no need to purchase soda ash at all after the initial start of operations. The losses are due to direct leakages, loss of carbonate to the phenols, and loss of caustic to the calcium carbonate mud.

The total, however, is not more than 10 per cent., and the consumption of soda ash is, therefore, reduced by 90 per cent.

Sulphuric acid is only lost in small quantities, since it is only used for removing entrapped carbonate liquor from the crude phenols.

Heat and power conservation is effected in several places.

No agitation is necessary to decompose the solution of sodium phenate to carbonate as the force of CO_2 from the kiln is sufficient to carry out the reaction. Compressed air is saved in the agitating of the oil with the caustic soda by means of the reaction tower, down which the two liquids run by gravity.

Recent Wills

Mr. R. W. Stewart, Dunfermline, bleacher and indiarubber manufacturer	£70,041
Mr. A. S. Townend, of 33, Burnett Avenue, West Bowling, Bradford, dyer	£9,659
John Ferguson, LL.D., Emeritus Professor of Chemistry in the University of Glasgow, and late of 13, Newton Place, Glasgow	£19,240
Mr. A. M. Calvert, of Belle Acre House, Belper, Derby, and of King Street, chemist and druggist	£10,481
Mr. J. Hughes, of Mark Lane, London, E.C., and of the Broad Walk, Kensington, agricultural analyst	£6,743
Mr. W. H. Hobbs, Tower Hill, London, chemist and druggist	£79,764
Mr. T. Lax, of Cross Flatts Avenue, Leeds, glass bottle manufacturer	£63,547
Mr. T. Morrill, of Lansdowne Road, Sidcup, Kent, metal merchant, of College Hill Chambers, London, E.C.	£9,257

Société de Chimie Industrielle

To the Editor of THE CHEMICAL AGE.

MONSIEUR LE RÉDACTEUR EN CHEF,—Nous avons l'honneur, au nom du Conseil d'Administration de notre Association, de vous prier de vouloir insérer dans votre estimé journal les deux notes ci-jointes concernant notre congrès annuel et l'exposition de chimie que nous organisons à cette occasion.

Nous avons la conviction qu'en présence de l'importance de ces deux manifestations vous voudrez bien donner une suite favorable à notre demande.

Veuillez agréer, Monsieur Le Rédacteur en Chef, avec tous nos remerciements, l'expression de nos sentiments bien dévoués.

49, Rue des Mathurins, Paris. JEAN GÉRARD.
Le 13 Août, 1921.

EXPOSITION DE LA CHIMIE.

Une exposition de chimie, organisée, sous le patronage de Monsieur Le Ministre du Commerce, par la Société de Chimie Industrielle, à l'occasion de son premier meeting annuel, aura lieu du 7 au 16 Octobre, dans les locaux du Conservatoire National des Arts et Métiers.

Cette exposition, embryon de la future exposition de la chimie, ne comprendra que deux sections ; L'outillage du Laboratoire et le contrôle industriel ; les matières colorantes.

La plupart des maisons françaises se sont déjà fait inscrire au nombre des exposants. La nouveauté et la diversité des appareils et des produits qu'elles se proposent de présenter, ne pouvent manquer d'attirer un grand nombre de visiteurs intéressés au progrès et au développement des diverses branches de la chimie.

CONGRÈS DE LA CHIMIE APPLIQUÉE.

La Société de Chimie Industrielle de France réunira, en un meeting annuel, les 9, 10, 11 & 12 Octobre, ses nombreux membres français et étrangers.

Ce meeting annuel, qui constituera un véritable congrès de la chimie industrielle, comprendra trente-quatre sections techniques, correspondant aux diverses applications de la chimie :

Chimie analytique ; Outillage de l'Usine ; Outillage du Laboratoire ; Industrie du gaz et cokeries ; Hydrocarbures, pétroles ; Distillation du bois et dérivés ; Industries frigorifiques ; Eaux ; Métallurgie et Electrométallurgie ; Métaux précieux ; Grande Industrie chimique ; Electrochimie ; Chaux, ciments et matériaux de construction ; Verrerie, céramique et émaillerie ; Petite Industrie chimique ; Terres rares, corps radioactifs, Matières colorantes ; Produits pharmaceutiques ; produits photographiques ; Poudres et Explosifs ; Essences, Parfums naturels et synthétiques ; Résines, couleurs, laques, vernis, Cires et produits d'entretien ; Caoutchouc et Succédanés ; Materières grasses, savons, bougies, glycérines ; Cellulose ; papier ; Matières plastiques, textiles artificiels ; Blanchiment, teinture, impression et apprêts ; Extraits tinctoriaux et tannants ; Industries de la tannerie et annexes ; Industries de la fermentation, œnelogie, cidrerie, brasserie, distillerie ; Sucrerie ; Féculerie, midonnerie, glucoserie ; Laiterie ; Matières alimentaires ; Chimie agricole, sols, utilisation des engrais.

D'importantes questions y seront traitées par les spécialistes les plus éminents.

Le Congrès, qui se tiendra au Conservatoire des Arts et Métiers, débutera le 9 Octobre au soir par une réception des congressistes. La séance d'ouverture aura lieu le 10, à 9 heures 30 du matin, sous la présidence de Monsieur Dior, Ministre du Commerce.

Plusieurs personnalités du monde scientifique et industriel ont accepté de faire des conférences d'actualité au cours du Congrès, dont la séance de clôture sera présidée, le 11 Octobre à 5 heures, par Monsieur Loucheur, Ministre des régions libérées.

Un banquet général suivra au Palais d'Orsay, sous la présidence de Mr. Lefebure du Prey, Ministre de l'Agriculture, et le lendemain, les congressistes partiront en excursion pour des visites d'usines.

Answers to Correspondents

GIORNALE DI CHIMICA INDUSTRIALE ET APPLICATA, MILAN.—The Statistical Supplement to the Final Report of the Nitrogen Products Committee is published by H.M. Stationery Office, Kingsway, London. 1s. net.

The Safeguarding of Industries

Chemical Glass Manufacturer's Views

IN a letter to the *Glasgow Herald*, Mr. J. Moncrieff, managing director of the North British Glass Works, Perth, expresses regret that there should have been held in Glasgow a meeting of protest against the Safeguarding of Industries Bill, and states that he cannot but conclude that considerable ignorance prevails in connexion with the section of the Bill that specially relates to key industries. In the following statement he puts concisely the case of the bona fide new key industry :—

"With regard to optical glass, it is admitted that the value of the actual glass required for scientific instruments is small compared with that of the instruments themselves. But, on the other hand, if Germany reserves their supplies of their best quality glass for German instrument makers, as I am informed is the case, then it is obviously imperative that this country should foster the manufacture of optical glass, as otherwise we shall lose not only that, but the scientific instrument industry in addition.

"With regard to chemical glass," he says, "it is impossible to maintain the industry under open competition from Germany and Czecho-Slovakia. This is due to lower wages and low exchanges in the countries named. When it is carefully considered to what extent most processes of manufacture depend upon chemical research and examination at some stage, it will be readily understood how necessary it is in the interests of the country to maintain the industry.

"I am connected with a company which carries on the manufacture of chemical glass. This department was commenced in 1915 at the urgent instigation of the Government, who, in view of the fact that we had for many years prior to the war carried on research in our own laboratory on heat resistance glasses, thought us most likely to come quickly to the country's aid in the crisis. We agreed with reluctance, as we had no capital available, neither furnaces nor buildings suitable and no skilled labour. However, as we fully realised the serious position, we undertook the work, although for the purpose of erecting and equipping a complete installation we had to borrow over £40,000. We also had to undertake the entire training of labour, and in view of the shortage of even unskilled labour, this was a very arduous task. Our aim and intention was to produce chemical glass at a small profit, notwithstanding that any price demanded might have been obtained. Unfortunately, owing to unforeseen difficulties of manufacture, unexpected rises in wages, raw material, coal and freight, the industry was carried on at a trading loss of over £12,000 in the first five years. Thus we are left with large extensive premises erected on borrowed money, and with the market entirely flooded with articles of German and Czecho-Slovakian origin far under our cost of production. On commencing we were solemnly assured that the industry would be fostered after the war, and naturally we have never ceased to urge the fulfilment of these promises.

"The present Key Industries Bill is the long delayed answer which, although far from adequate, will at least help us to retain a portion of the trade. It is frequently stated that the key industries section should have been treated as a separate Bill. This was urged by the chemical and optical glass manufacturers, who strongly deprecated the mixing of the support of vital key industries with measures relating to anti-dumping and equalisation of exchanges, but our representations were without avail. I have noted that the protection of genuine key industries is not seriously opposed, but the method of protection provided by the Bill is disliked. I would point out, however, that deferred support will be too late, as it is no good bringing in protective measures when the industry is dead and the capital lost, which in a few months will certainly be the case unless a measure of support is forthcoming in the immediate future."

Mr. W. D. HUNTINGTON, vice-president of the Davison Chemical Company, Baltimore, who has recently returned to the United States from a three months' European tour, in the course of which he visited Germany, France, England, Spain and several other countries, expressed the opinion that Germany had made the greatest progress in getting back to work and gave every indication of becoming a most formidable competitor.

State Importation of Dyestuffs

Merchants' Protest against Board of Trade Policy

CORRESPONDENCE has passed between the Chemical and Dyestuff Traders' Association and the Board of Trade in reference to the Board's policy of direct importation of dyestuffs and their distribution through the Central Importing Agency among the trade in competition with merchants.

The Merchants' Case

On July 29 the Association wrote as follows to the President of the Board of Trade :—

"On behalf of British chemical and dyestuff traders, we desire to draw your attention to the serious position created for traders by the gradual extension of the Board of Trade's direct intervention into the business of importing and distributing dyestuffs, and by the methods the Board is adopting.

"Up to June 30 last, according to a recent statement in the House of Commons, the Board had imported over 4,000 tons of reparation dyestuffs, and had only disposed of a little over 1,000 tons. Where sales on behalf of the Board of Trade take place, they appear to be effected through what is known as the Central Importing Agency, which consists of a Manchester firm having no previous experience of the industry, and which is in the habit of offering goods for sale to members of the trade by circular or otherwise.

"It has recently come to the knowledge of the Association that the Dyestuffs Licensing Committee appointed by the Board of Trade decline to grant licences for the import of colours already included in the Board of Trade's unsold stocks, and direct applicants to apply to the Central Importing Agency for their supplies, thereby depriving the British merchant of the right to obtain his stocks direct from the firms he usually deals with.

"Further, the Licensing Committee demands from applicants for licences the names of their customers. This procedure enables the Board of Trade, as importers and distributors of dyestuffs, to collect information as to the customers usually supplied by merchants, and to approach such customers direct throughout the Central Importing Agency.

"Still further, we understand the Licensing Committee has recently applied to members of the trade for a certified return of the kinds and quantities of any imported foreign dyestuffs which they had in stock on June 30, 1921, or which were in any way under their control in the United Kingdom.

"As representing a large body of old-established and *bona-fide* merchants in chemicals and dyestuffs, we desire to enter the strongest possible protest against traders being subjected to this direct competition in business on the part of the Board of Trade, and against the growth of Departmental restrictions upon the ordinary trading liberties of commercial firms.

"One of the greatest needs of the country at present is the development of export trade, in which the merchant class, in the national interest as well as their own, desire heartily to co-operate, and as the present policy of the Board of Trade is seriously hampering the restoration of both home and international trade, we trust you will have a thorough investigation made into the situation, and will take steps to limit the Board's competitive and repressive policy towards British traders."

The Board's Reply

Replying for the President of the Board of Trade, on August 11, his private secretary wrote :—

"I am desired by the President of the Board of Trade to inform you that he has given careful consideration to the various points raised in your letter of the 29th July on the subject of the distribution of Reparation Dyestuffs and the procedure in respect of licences under the Dyestuffs (Import Regulation) Act, 1920.

"As regards the first of these matters, I am to point out that in considering the size of the present stock of Reparation Dyes account must be taken of the trade depression. Though, after consultation with the interests directly concerned, options under Section 2 of the Annex mentioned will, no doubt, be exercised from time to time, Mr. Baldwin sees no reason for the assumption that there will be a 'gradual extension of the Board of Trade's direct intervention into the business of importing and distributing dyestuffs.'

"Mr. Baldwin understands that where application is made by users, agents or dealers of licences to import dyestuffs of which the Board hold a stock, it is the practice of the Dyestuffs Advisory Licensing Committee to inform applicants accordingly and to suggest that they should obtain their requirements from that source. The Board have evidence that this course has been welcomed by many applicants, who have been enabled thereby to obtain supplies more expeditiously than would otherwise be the case.

"As regards the requirement by the Committee that in certain cases of applications for licences the names of the actual consumers shall be furnished, Mr. Baldwin is advised that this is necessary to enable the Committee to secure that applications are not made by agents or dealers for kinds and quantities of dyestuffs which are not actually required but are speculative imports. The names of the consumers, when given, are not communicated to the Central Importing Agency or otherwise used for the purpose suggested in your letter.

"Finally, the Committee are of opinion that periodical returns of the stocks in the hands of importers, as also of British dyestuffs manufactuerrs, are necessary to enable the Committee to discharge their statutory duty, and Mr. Baldwin is not prepared to interfere with the exercise of their discretion as to requirements in this respect."

Dye Industry Prospects

Co-operation Between Makers and Users

AT the annual meeting of shareholders of Scottish Dyes, Ltd., held in Glasgow on August 12, the chairman (Mr. James Morton) made reference to the prospects of the dye industry. Outlining the circumstances in which the dye industry was commenced in this country, he recalled the determination of the Government and of the users of dyes that we should have in this country a thoroughly equipped dye trade which would make us independent of the foreign product.

The German dye-makers were now formed into a close combination, and Mr. Morton asked what the situation would have been for British dye-users to-day if dye-making had not been established in this country during the war. The German syndicate, especially in view of the necessity of raising enormous additional national revenue, would have asked whatever prices they liked ; in point of fact, the German prices to-day were determined according to whether or not the particular colour was made in this country—those dyes not produced here being charged at a very exorbitant figure. Our Government had determined that this country should in the future be second to none in the great chemical industries, and this attitude has been endorsed by business men of all ranks. Could we afford to ignore that challenge ? He had recently been in India and other places abroad to establish dye agencies, and found that the Germans everywhere were declaring that they meant to leave no room in the world for British dye-makers. There could be nothing more damaging to our prestige as a business nation in the eyes of the outside world than if we were to fail in this endeavour and have to admit that the ways of science were beyond our capacity.

Mr. Morton asked for close co-operation between dye-makers and dye-users, and indicated that, in his opinion, given such co-operation, there was no task in this field that British scientists and British commercial men could not accomplish.

It is reported that a new method of converting ordinary bricks into REFRACTORY FIREBRICK has been perfected in Germany, consisting of a coating comprising a mixture of 75 per cent. carborundum and 25 per cent. sodium silicate. The mixture is applied to the bricks when they are thoroughly dried, and the coating sets and thoroughly dries in 24 hours. This coating averages about one-fiftieth of an inch in thickness, and the adherent glassy veneer of carborundum gives remarkable resistance to any mechanical injury ; it is claimed to have the ability to withstand very high temperatures and to afford complete protection against the chemical action of flames. It is said that sudden changes of temperature do not have any effect upon it. This coating is said to have been used successfully as a lining for gas retorts as well as for the outside surface ; a paste of equal parts of carborundum and clay is used for repairs when cracks occur.

Spontaneous Combustion of Coal

Departmental Committee's Final Report

IN the introduction to the Report of the Departmental Committee on Spontaneous Combustion of Coal in Mines, which has just been issued [Cmd. 1417, price 1s. 6d. net], attention is called to the fact that the Committee was appointed in August, 1912. In December, 1913, the Committee presented an interim Report, which dealt particularly with the measures necessary to safeguard the lives of persons employed in mines subject to the occurrence of spontaneous combustion; but the war interfered with the publication of their final Report.

Section I. of the Report, which gives an historical review of the subject, states that as long ago as 1686 Dr. Plott, professor of chemistry in the University of Oxford, gave an account of the occurrence of the spontaneous combustion of coal. At that period, and well into the nineteenth century, the commonly accepted explanation of the phenomenon was that the heat evolved by the oxidation of the pyrites in coal was the primary and principal cause of the initiation of spontaneous combustion. The history of the gradual refutation of this long-established theory is carefully traced, and supported by quotations from various writers on the subject, among them being Berzelius, Wilkes, Percy, Liebig, Richters, Fayol, Haedicke, Lewes and Haldane and Meachem. The pyrites theory was replaced by others, such as "absorption of oxygen by the coal substances," "bacterial action," &c.; but none of these was generally accepted as a solution of the problem.

Probable Causes

In view of the divergent theories held as to the occurrence of spontaneous combustion, the Committee decided to investigate the subject in the light of the most modern scientific research. To this end many of the most eminent mining chemists and palæobotanists of this country were invited to give evidence. Definite scientific experiments were made at the request of the Committee, the results of which are embodied in the Report and Appendices. In taking evidence, each witness was asked to express his views on the following points—viz., the physical and chemical structure of coal; bacterial action; effect of the moisture content; effect of the presence of pyrites; effect of the absorption of oxygen.

Complete unanimity was not obtained on all these points, but after careful consideration of the evidence, the Committee arrived at the following conclusions:—

(1) That the self-heating of coal is not in any way due to the presence of bacteria and that bacterial action, even if it occurs in coal, does not account for even the initial stages of self-heating.

(2) That some small amount of heat may be developed by the oxidation of pyrites in coal when it occurs as an amorphous form of marcasite; but that, as pyrites is present in coal in such small proportion as compared with the coal substance proper—which is a bad conductor of heat—the effect of this heat is negligible. The chief part played by pyrites when present in an unstable form is that of a disintegrator of the coal, so rendering the latter more permeable by air and exposing a greater area of coal substance to oxidation.

(3) That the presence of moisture in coal has an accelerating effect on its oxidation, and consequently that coals high in hygroscopic moisture absorb oxygen more readily than those of low moisture content.

(4) That the self-heating of coal is mainly due to the absorption of oxygen by the coal resulting in the generation of heat.

(5) Though coal absorbs both oxygen and nitrogen in a physical sense as well as in a chemical sense, the absorption in so far as heating effects are concerned is a chemical and not a physical process; that the chemical process is mainly one of attachment of oxygen to molecules of high carbon content, but that subsidiary to this, and playing an important part in determining the actual spontaneous ignition of coal, is a chemical interaction between the oxygen thus loosely held by the carbon-like molecules and other atoms in these molecules or other portions of the coal conglomerate.

(6) That, from the chemical standpoint alone, the higher the percentage of oxygen contained in a coal the greater, it would seem, the liability to spontaneous combustion.

(7) That the texture of the coal is a matter of great importance, seeing that the more permeable is a coal, other things being equal, the greater are the effects of oxidation, inasmuch as a greater surface is exposed to the action of the air as compared with a coal of closer texture.

(8) That as the temperature rises the rate of absorption of oxygen increases.

In conclusion, the Committee state that probably all bituminous coal is liable to spontaneous combustion in some degree, but the fact that there is greater liability to self-heating of the coal in the seams of some coalfields of the United Kingdom than in others is due to several causes other than the chemical composition of the coal.

Low Temperature Carbonisation

Increased Yield of Crude Coal Oil

MESSRS. CLOSE BROTHERS & CO., LTD., who have been directing the work at Barnsley in connexion with the plant of Low Temperature Carbonisation, Ltd., have issued a report on the position to date, in which they state:—

"When our syndicate took over the coal conversion plant at Barnsley in March last the work of completing the construction of the 20 retorts necessary for commercial demonstration had begun. Several of the already completed retorts had, in fact, been operated with satisfactory results. Since then we have been principally occupied in finally completing and testing the operation of the plates, which are the new patented feature of the retorts, and we are glad to say that, as a result, the whole of the retorts should be in operation within the next week or two, producing smokeless and liquid fuels, &c.

The primary cause of the delay in running the whole battery continuously as a unit was the coal strike, but time has not been wasted; on the contrary, during this period improvements in the method of discharging the coalite from the retorts have been satisfactorily developed and coalite has been discharged in record time, thereby materially reducing the operating costs and, in our opinion, ensuring for the process a great commercial future. All the retorts have been fitted with this new device. As individual retorts of this battery have run continuously for a period of from three to five months, we are convinced that the whole battery will operate continuously and successfully. Since we have been in charge several experiments of a highly satisfactory nature have been made with non-coking coals.

"Our engineers, Messrs. Davidson and Abbott, calculate that as a result of these experiments as high a percentage as 70 per cent. of non-coking coal can now be mixed with coking coal and a perfect coalite produced. This new development is of far-reaching importance, for the reason that non-coking slack in ordinary times is a drug on the market and can be purchased for much less than coking slack. Our expert oil technologist is of the definite opinion that the ultimate yield of crude coal oil per ton of coal carbonised will be considerably in excess of the 16 gallons hitherto estimated, although the economic success of the process has been based on 16 gallons. In conclusion, we are pleased with the progress of the work at Barnsley. We see no reason why the plant should not work continuously, and we are confident that the process will be an undoubted commercial success as soon as the small amount of work remaining to be done is completed."

The Nitrate Scheme

DETAILS are to hand regarding the scheme for meeting the present difficulties of the nitrate industry that was approved at the meeting of English-producing companies held last week. The scheme provides for compensation being paid to the pool by a contribution of 4d. per quintal by the Chilean Government and 4d. per quintal by the nitrate producers on the next 90,000,000 quintals of nitrate shipped, in return for which the pool would release the Nitrate Association from their undertaking not to sell below 14s. per quintal until after March next. It has been suggested that f.o.b. prices should range from 9s. 6d. to 11s. per quintal, according to delivery dates. Assuming a freight basis of 50s. per ton, this would work out at about £14 to £15 10s. per ton delivered in Europe.

British Gas Mantle Industry

Signs of a Trade Revival

AT the annual general meeting of the Welsbach Light Co., Ltd., held on Tuesday at Winchester House, Old Broad Street, E.C., Mr. J. R. Yates (the chairman), who presided, shortly reviewed the position of the gas-mantle industry prior to and since the war, and referred to the import of foreign mantles, aided by conditions of labour and depreciated exchange which were harmful to British trade.

Since the issue of the directors' report, said Mr. Yates, the remaining stages of the Safeguarding of Industries Bill in the House of Commons had been concluded, and on the previous day it reached its second reading debate in "another place." Certified to be a Money Bill, it was apparently immune from amendment or final rejection there. As its effects would largely depend on the interpretation placed upon it, as to one part by the Board of Trade, or possibly by a referee to be appointed by the Lord Chancellor, and as to the other parts upon the report of a Committee, he declined to attempt a forecast of its results. Beyond, however, the unsettlement in their own industry which had prevailed throughout the period under review, there set in during last year a wave of general industrial depression of unexampled severity not only in this country, but throughout the world, the results of which were reflected in the accounts of most trading concerns. This depression, combined with the cause before referred to, had a marked effect on the company's trade, especially during the latter part of the financial year.

Referring to the accounts generally, the chairman said he thought that, under all the conditions, the shareholders would consider them satisfactory, and he was confirmed in this conclusion by the encouraging letters which he had received from large shareholders. He added that, as the result of conservative finance in previous years, the balance sheet comprised assets substantially in excess of the share capital. In further remarks he alluded to the appointment of Mr. Harold Talbot as general manager of the company and said he thought they were very fortunate in securing the services of a man who, in addition to scientific qualifications, had actual experience of the gas-mantle industry.

In conclusion, Mr. Yates said there were signs of a return to better times for British trade generally, in which this, the pioneer company of an essential industry, helped by its sound balance sheet, substantial assets and cash resources, should take its fair share.

The report and accounts were unanimously adopted, and a dividend of 5 per cent. (actual) was declared.

Tanks & Drums, Ltd

THE Shipley Tank Co., Ltd., Bowling Ironworks, Bradford, have resolved that the name of the company should be changed to Tanks & Drums, Ltd. The reasons are that the company is located in Bradford, and not in Shipley, and that, owing to the word "Shipley" appearing in their title, serious inconvenience resulted. It was also felt that the new name more accurately and comprehensively described the work now carried on by the company. The company now manufacture tanks, cisterns, cylinders, drums, kegs, bath boilers, dust bins and wash tubs, and will be putting several new lines of metal goods on the market in the course of the next few months. They do all kinds of sheet-metal stamping and welding work. Their galvanizing equipment has been extended, and is in charge of workmen of long experience.

The late Mr. David H. Thornton, who was formerly associated with several of the largest public companies in Yorkshire, was for a number of years chairman and managing director, and under his guidance the company developed very rapidly. He was assisted by Mr. A. Brooksbank, as works director, and Major W. H. Thornton. Mr. Brooksbank has been associated with the company since its inauguration, and has had a very wide and practical experience in all classes of sheet-metal work. Mr. Thornton died on the 13th July, and has been succeeded as chairman and managing director by his elder son, Major W. H. Thornton.

CASTOR-OIL PLANTS are now being grown on many of the rubber estates in Ceylon, owing to the depression in the rubber industry.

Deals in Acetic Acid

An Alleged Bankruptcy Offence

AT Boston (Lincs.) recently, J. H. Bolton, 54, Wide Bargate, Boston, who had traded as the New Patent Superfine Vinegar Co., was charged under the Bankruptcy Act with obtaining credit to the extent of £128 10s. 3d. from Victor Blagden & Co., 4, Lloyds Avenue, London, E.C.3, without disclosing the fact that he was an undischarged bankrupt. He was also charged with obtaining credit from two other firms, and for engaging in trade or business without disclosing name under which he was adjudicated bankrupt on November 27, 1919.

John W. Roberts, Hampton-on-Thames, senior examiner in the department of the Official Receiver's High Court, said a petition in bankruptcy was presented against Bolton in April, 1918. A receiving order was made on May 21, 1918, and a creditors' meeting was held in June. No resolution was passed, and the Official Receiver remained trustee of the estate. Bolton was adjudged bankrupt on June 11, 1918. An adjourned public examination was fixed for July 31, 1918, and Bolton failed to attend. On account of that failure he was arrested and detained in custody until Aug. 28, 1918. He had not obtained his discharge from bankruptcy.

H. W. Young, managing clerk for Victor Blagden & Co., chemical merchants, London, stated that he received on July 26, 1919, a letter from the N.P.S. Vinegar Co., asking if they could supply vinegar. As the result of the correspondence, he did, between July, 1919, and Nov., 1919, supply acetic acid, to the value of £150 7s. 9d., to the N.P.S. Vinegar Co., Boston. With each consignment an invoice was forwarded. In all the correspondence he had with the N.P.S. Vinegar Co. they understood that Bolton was the proprietor. He never disclosed the fact that he was an undischarged bankrupt.

W. J. Mouncey, G.N.R. goods agent at Boston, produced invoices and delivery-sheets for acetic acid to be delivered in 1918 to the N.P.S. Vinegar Co., at Boston, by Victor Blagden & Co.

Defendant, who reserved his defence, was committed for trial at the Quarter Sessions.

Mexican Market for Paints and Varnishes

ACCORDING to the United States Consul at Progreso, Yucatan, the paints and varnishes used in that district are almost exclusively of American origin, there being no local paint manufacturers, and there having been practically no importations of these articles from Europe since 1914. Oil paints are used for interior and exterior finishes in the case of the better stone as well as of the better wooden houses. Interior walls usually have stencilled designs. Water paints have a comparatively large use owing to their cheapness, ease of application, and adaptability to the stone interior and exterior walls. Wall paper is not used, being entirely unsuited to climatic conditions. Paints of all colours are used, but white, green, red, and brown are particularly popular. The use of prepared paints is common and good stocks are available. Painters, however, prefer to mix their own paints, using paint powder and oil American weights and measures are employed, except in the case of products sold in bulk, such as powder, oil, &c., where the metric system is used. Tins of a gallon and less are preferable for the general retail trade. There is no manufacturing in which varnishes are used. A considerable quantity is sold, however, for repair jobs, for furniture, vehicles, &c. Containers used in this trade should have the lettering in Spanish. Good packing, including waterproof lining, is desirable to withstand rough handling in the port of Progreso and to avoid injury to tins by accidental wetting in the unprotected harbour. Practically all paint is imported and sold by hardware dealers, who, if of unquestioned standing and of good connexions, are granted the usual terms of 30, 60 or 90 days' credit. Advertising has not been adopted as a means of selling paints, and it is doubtful if expenditure for that purpose would result in profit. No statistics are available at the Progreso Custom House as to the importation of paints and varnishes.

It is reported from Berlin that a new joint stock company has recently been formed in Hamburg under the style of the Chemische Fabrik Entrup A.-G. The capital is understood to be 1,000,000 marks.

Chemical Trade Wages

National Strike Threatened

A STRIKE of all the chemical workers of England and Wales is threatened because of the employers' proposal to reduce wages by 2d. an hour. A ballot of the workers was taken, and the result was announced at a meeting in Manchester on August 13 of the workers' representatives on the Joint Industrial Council. The figures were :—

Against acceptance	10,510
For acceptance	434
Majority against	10,076

About 30,000 workers are involved. The number would have been much larger but for the unemployment already existing in the chemical trades. After the ballot had been announced the following resolution was passed :—

"This conference gives notice to the chemical employers that the workpeople will cease work on August 27 unless in the meantime wages are readjusted to a satisfactory rate."

A partial strike, in fact, is in being at the moment, for the chemical workers of Lancashire and Cheshire employed in the salt trade, who number about 3,000, ceased work of their own accord at noon on August 13 as a protest against the employers' attitude.

In an interview with a Press representative, Mr. W. T. Kelly, the men's secretary on the Joint Industrial Council, said he "had tried to bring about a joint meeting of the two sides, but the employers had shown no desire for such a meeting. The workpeople have been extremely reasonable throughout the negotiations, but the determined attitude of the employers, who seemed to think we would accept any conditions, has prevented a settlement."

Replying to the ballot and notice to cease work on August 27, Brunner, Mond & Co., Ltd., have issued the following statement :—

"In these circumstances the only course open to the directors is to give notice that unless within the next few days they receive assurance of the intention to remain at work from sufficient men to enable manufacture to be carried on, these works will be closed as from August 27. Certain departments will be stopped at earlier dates in the absence of such assurance."

Society of Chemical Industry

British Party Leaves for Canada

THE British members of the Society of Chemical Industry who are attending the annual meeting in Montreal left Euston for Liverpool by the special 9.30 a.m. boat train on August 12, sailing on the s.s. *Melita* the following day. Among the party which left London were Sir W. J. Pope, K.B.E., the retiring President, Dr. J. P. Longstaff, the General Secretary, Dr. L. A. Jordan, representing THE CHEMICAL AGE, and Captain C. J. Goodwin, who is acting as delegate for the Chemical Engineering Group.

As was stated earlier in the year by Sir William Pope, the Canadian and United States members are providing uncommonly extensive facilities for the inspection of works concerned with every branch of chemical industry, facilities which could not be granted to private individuals travelling alone.

The British party is expected to arrive in Montreal on or about August 22 and will be entertained by the Reception Committee between August 26 and 28, the business of the meeting starting on the morning of August 29 with a Council Meeting at the McGill University, followed by the annual meeting. The complete provisional programme, extending from August 29 to September 18, has already appeared in THE CHEMICAL AGE and reports of the proceedings will be published from time to time as received from our correspondents.

Sir William Pope, who expects to be back in England on September 25, has consented to address members of the Chemical Industry Club on the evening of October 5 on his impressions of the trip. He will leave for Paris immediately after the Annual Dinner of the Society on October 7, to attend the Annual Meeting of the French Society of Chemical Industry. On October 15 he leaves Marseilles *en route* for Bombay.

Death of Mr. A. Noble

(FROM A CORRESPONDENT)

THE death occurred at his residence, Lauder Road, Edinburgh, on Monday, of Mr. Alexander Noble, a member of the firm of Messrs. Duncan, Flockhart & Co., pharmaceutical and manufacturing chemists. He passed the major examination qualifying as a pharmaceutical chemist and was admitted a member of the Pharmaceutical Society, of which latterly he was the father, and for many years he was a member of its Examining Board. The greater part of his active business life was spent in the firm of Messrs. Duncan, Flockhart & Co., in which he was most closely associated in their Princes Street pharmacy.

Chemical discovery and science found in him a keen and interested student, which brought him into touch with many eminent men. Among the foremost of these was Sir James Simpson, with whom he was well acquainted in connexion with his experiments with chloroform, and he was one of the first to submit himself to its influences. Mr. Noble was a member of the Edinburgh Merchant Company, but he was of a retiring disposition and, while he took no prominent part in public life, he was keenly interested in the welfare of the city, and in his own quiet way was ever ready to advance its interests. He retired from business in 1913.

Chemical Industry in Russia

ACCORDING to the *Ellonoaritcheski Zhisn*, an ambitious programme had been drawn up by the Ural Chemical Works in 1921, but, owing to a number of causes, the programme proved to be far superior to the work that could be done. The factories chiefly included in the anticipatory estimate are the Brusoff Soda Works, which produced down to the date of the report only 43 per cent., or 129,000 poods of calcined soda; but 139,000 poods, or 205 per cent., of caustic soda. This is the only case in which the production exceeded the estimate. The Perm Superphosphate Works produced 12,000 poods of superphosphate, or 89 per cent. of the estimate. The Shaitanski Chemical Works produced a little over 2,000 poods soda bichromate, or 18 per cent. of the estimate; about 6,000 poods sulphuric acrid, or 89 per cent. of the estimated quantity. The Polievsky Chemical Works produced about 19,000 poods of sulphuric acid, 52 Bé, or 47 per cent. of the estimate, and about 3,400 poods of muriatic acid, or 85 per cent. of the estimate. The Kyshtim Works made a little over 3,000 poods of nitric acid, 48 Bé, or 79 per cent. of the quantity estimated, and about 1,000 poods ditto, 36 Bé, or 32 per cent. of the estimate, besides sulphate of copper and some sundries, all well below the quantity estimated to be produced.

German Dyes in China

IN endeavouring to protect our own nascent dye industry from unfair German competition, states the *Financial News*, the fact is frequently overlooked that this country is not the only market for the German product, and that we can injure our competitiors relatively little by the proposed impost. Germany has already got seriously to work in other directions, and her trade in dyes seems likely to expand, seeing that she can produce at a much lower level than is possible elsewhere. Taking as an illustration the Chinese market, official figures show that whereas in the spring of 1920 the imports from Germany were nil, they amounted in the spring of the current year to Hk. taels 538,387. How this figure compares with imports from other countries can be seen from the following table:—

Imported from	Spring 1921. Hk. Tls.	Spring 1920. Hk. Tls.
Germany	... 538,387	... No imports.
U.S.A.	... 442,893	... 177,933
Holland	... 383,861	... 24,850
England	... 98,569	... 41,670
Japan	... 96,706	... 113,210
Total ...	...1,560,416	... 357,663

It may perhaps be assumed that the great increase in imports from Holland is explained by German dyes passing through that country. Whereas in the earlier period England's contribution to the total was 11.6 per cent., it has fallen, according to the above statement, to 6·3 per cent. in value.

Chemical Matters in Parliament

Safeguarding of Industries Bill

FOLLOWING the Speaker's decision to grant a certificate to the effect that the Safeguarding of Industries Bill was a money Bill within the meaning of the Parliament Act (House of Commons, August 12), Mr. Asquith, on the third reading of the Bill, moved its rejection.

On a division the Bill was read a third time, by 176 to 54.

In the House of Lords the Bill was read a first time.

In the House of Lords on Monday, Viscount Peel moved the second reading of the Bill, and in the course of the debate Lord Emmott moved its rejection. The debate was adjourned on the motion of the Marquess of Crewe. On Tuesday the debate was resumed on Lord Emmott's motion and, on the House dividing, there voted for the rejection, 43; against the rejection, 68.

The Bill was then read a second time. On Wednesday the House of Lords went into Committee on the Bill, when an amendment by Earl Midleton limiting the duration of any order under the dumping part of the Bill to two years was carried by 39 to 33. Viscount Peel said acceptance of this amendment was equivalent to rejection of the Bill.

On Clause 10, the Marquess of Crewe moved the following new sub-section providing that if the Board were satisfied that goods to which the Act applied had been imported for educational or scientific purposes, and so used, the duty should be repaid. He proposed the amendment, he said, in the interests of education and science and of scientific research, and hoped the Government would seriously consider its adoption.

Viscount Peel said the amendment would be too wide in its effect and could not be accepted. The better way of facilitating scientific research would be by way of a subsidy for that purpose.

The amendment was withdrawn.

The remaining clauses were agreed to, and the Bill was ordered to be reported to the House with amendments.

Imports from Germany

In reply to Mr. Kiley (House of Commons, August 8), Mr. Baldwin said the value of United Kingdom imports consigned from Germany registered during the period from January 1 to June 30, 1921, was £11,797,491, as against £11,895,943 in the corresponding period of 1920.

Alkali Industry

Mr. Myers (House of Commons, August 9) asked the President of the Board of Trade whether certain Reports of Sub-committees appointed by the Profiteering Acts Department were incomplete, but were nevertheless published; whether the Report of the Sub-committee on the Alkali Industry was any less complete than the Reports submitted on dyeing, printing, bleaching and printing, and on explosives; whether the Sub-committee on the Alkali Industry obtained sufficient evidence to warrant the conclusion that there was a combination in this industry; and whether he would have, in the public interest, the findings of this Sub-committee published?

Sir W. Mitchell-Thomson said he was aware that certain incomplete Reports of Sub-committees under the Profiteering Acts had been published, but the investigations into the alkali industry were not sufficiently far advanced for the publication of the Report to serve any useful purpose.

Dangerous Drugs Act

Mr. Gilbert (House of Commons, August 11) asked the Home Secretary whether the regulations under the Dangerous Drugs Act, 1920, had been officially confirmed and were now in operation; and what other powers had passed legislation in accord with the Opium Convention of 1912, so as to secure co-operation in regard to the import and export of the dangerous drugs named in the Act?

Mr. Shortt said the regulations had been made and would come into force on September 1. He could not say definitely what other Powers had passed legislation to carry out the Convention of 1912, but the Powers which were signatory to the Treaties of Peace undertook to enact the necessary legislation without delay, and at latest within 12 months from the Treaties coming into force. He understood that full information as to the position in each country was being collected by the League of Nations, which was entrusted with the general supervision over the execution of the Opium Convention.

Ironhirst Peat Factory

Major Kelley (House of Commons, August 13) asked the Secretary of State for War what was the total amount expended by the War Office and Ministry of Munitions on the Ironhirst Peat Factory; what was the liability agreed upon by Wet-carbonising, Ltd., what was due to H.M. Government in connexion with this factory; had the factory been sold, or was there a contract for sale by the liquidator; was the liquidator an official of Wetcarbonising, Ltd.; what was the proposed purchase price for the factory; and what dividend did the Government expect to receive on their debt?

Mr. H. Young said the total expenditure by the War Office and the Ministry of Munitions was approximately £490,000; the liability of Wetcarbonising, Ltd., under the agreement to purchase was agreed at £370,000. Owing to the inability of the company to provide the purchase money, their rights to purchase were, under the terms of the agreement, cancelled, and the factory remained Government property for disposal in the usual way. Negotiations for the sale of the factory had recently been concluded, but the liquidator, who was an official of the company, had no interest in the sale. Having regard to the very small dividend anticipated, it was deemed expedient to waive all claims against the liquidator in return for a complete release of certain claims by the company against the Government, and no dividend was therefore expected.

Slag Phosphate

Mr. Forrest (House of Commons, August 15) asked the Minister of Agriculture whether he was aware that ground mineral phosphate of a quality much more rapid in its action than Nauru phosphates, and therefore of greater real fertilising value, could be obtained in the open market at 2s. per unit of phosphate of lime, as compared with 3s. per unit for slag phosphate; whether the Ministry would take the necessary steps to reduce the excessive price now being charged for slag phosphate; whether he was aware that, before the phosphate commissioners entered into contracts with the Slag Phosphate Co., the Ministry had intimated they would not allow the whole of the English allocation of Nauru phosphates to be sold to any single interest; and would he state the reason which actuated the change of attitude on the part of the Ministry resulting in the sale of the total allocation to the Slag Phosphate Co., Ltd., or the South Wales Basic Slag Co., Ltd.?

Lieut.-Colonel Sir J. Gilmour (for Sir A. Boscawen) said he was not aware of the particular ground phosphate referred to, nor of any field trials that had been made comparing Nauru phosphate with other mineral phosphates, but he was informed that a ground mineral phosphate was being offered for sale by certain firms at about 2s. per unit of phosphate of lime. The responsibility for the sale within the United Kingdom of Nauru and Ocean Island phosphates rested entirely with the British Phosphate Commissioners, and the Ministry had no control whatever over the price of slag phosphate. As previously stated, the price of 3s. per unit, at which this fertiliser was being sold, was understood to be the cost price plus a limited profit. The Ministry was informed by the Phosphate Commissioners that the Slag Phosphate Co., Ltd., were the only traders who were prepared to undertake the immediate distribution of Nauru phosphate in satisfactory quantities. He was not aware that the Ministry ever made such an intimation as that mentioned by Mr. Forrest.

Motor Spirit from Linseed Oil

Viscount Curzon (House of Commons, August 16) asked the President of the Board of Trade whether his attention had been drawn to the address delivered by M. Mailhe, before the French Academy of Science, on the production of spirit for use with internal combustion engines from linseed oil; and whether he would do all in his power to assist such a person, in view of the importance of being independent of imported supplies of fuel for this type of engine?

Sir W. Mitchell-Thomson said he had seen references to this subject. Even if the process were commercially profitable it was not clear how it would render us independent of imported supplies; nor did he see in what way the Board of Trade could assist the discoverer.

From Week to Week

THE MIDLAND COUNTIES GLUE CO., LTD., have removed from Lower Mounts, Northampton, to Mill Road, St. James', Northampton.

The lock-out at the SCOTTISH LEAD MINES in Wanlockhead and Leadhills, which started in January last, has not yet been settled.

THE BRITISH WAX REFINING CO., LTD., have transferred their London office staff to their works, 31, St. John's Road, Redhill, Surrey.

Two additional LECTURERS IN BIOCHEMISTRY in the University of Cambridge are to be appointed in October, with incomes of £350 each.

We regret to record the death, on August 16, at 328, Golfhill Drive, Dennistoun, of Mr. DAVID ADAMS, manufacturing chemist, of 14 and 16, Drummond Street, Glasgow.

HULSE & CO., dye and chemical manufacturers and merchants, announce that the offices are now at their works at Woodlesford, near Leeds, and not at 12, South Parade, Leeds.

Mr. W. J. U. WOOLCOCK, C.B.E., M.P., general manager of the Association of British Chemical Manufacturers, has relinquished his appointment as unpaid Parliamentary Secretary to the Postmaster-General.

SRI KRISHNA, of the East London College, has been awarded the Ph.D. degree in the faculty of science for a thesis entitled "The Condensation of Phenols with Acid Anhydride, with Special reference to Coumarin."

During 1920 Algeria produced 502,931 metric tons of PHOSPHATES, of which 351,221 metric tons were exported. During the first quarter of this year production amounted to 133,106 metric tons and exports 82,595 metric tons.

THE AUTUMN MEETING of the Iron and Steel Institute will be held on September 5 and 6 in Paris, at the headquarters of of the Comité des Forges de France, 7, Rue de Madrid. After the meeting there will be a series of alternative visits to works in Lorraine, Burgundy and Normandy.

DUROGLASS, LTD., manufacturers of furnace, graduated and lamp-blown glassware, announce that they have removed their sales department and show-rooms to more commodious premises at 40-43, Norfolk Street, Strand, W.C. 2. The telephone numbers are Central 8080 to 8089 (10 lines).

Lord LEVERHULME is about to erect a new building to be known as the Queen Mary Maternity Home on the site of the old Upper Flask, Heath Street, Hampstead. The work of the maternity home is now being carried on at Cedar Lawn, North End Road, Golders Green, another of Lord Leverhulme's properties.

The *Isvestia* of Copenhagen prints an official report stating that the RUSSIAN NAPHTHA INDUSTRY is in danger and will be discontinued. Since the nationalisation of the naphtha industry the exploitation of 700 sources in the Baku district has been ended owing to the workers having refused work when they could not get food.

In reply to Sir J. Butcher (House of Commons, August 11), Mr. Young said the deliveries of dyestuffs from Germany to the Allies from November 11, 1918, to April 30, 1921, amounted to 36,823,000 gold marks, of which 8,421,000 marks were received by this country. The cash receipts of the Treasury to date included the sum of £238,000, the proceeds of the sale of German Reparation dyestuffs.

It is announced that tickets for the eighty-ninth annual meeting of THE BRITISH ASSOCIATION can be obtained until August 30 at the office of the British Association, Burlington House, Piccadilly. The inaugural meeting will be held in the Usher Hall, Edinburgh, on September 7, at 8.30 p.m., when Sir Edward Thorpe will assume the presidency in succession to Professor W. A. Herdman. The 1922 meeting will be held in Hull.

The annual LAVENDER OIL FAIR of France will be held this year at Digne, France, beginning on October 1, and perfumers throughout the world are invited to take part. Efforts will be made to attract to Digne all the important buyers. The Office Agricole des Basses-Alpes has also decided to call a Lavender Congress at the same time. Important questions will be discussed, in particular, the means of remedying the lack of sale of the oil, the best methods of cultivation and distillation, and the protection of the pure oil.

Imports of HEAVY CHEMICALS into Sweden from the United Kingdom have increased, and appear to be steadily increasing. In 1914 the imports of caustic alkali (solid) from all sources were about 2,000 tons, increasing to 3,760 tons in 1919, and 4,082 tons in 1920. Of this the United Kingdom has supplied about two-thirds. With regard to liquid alkali, which has been supplied exclusively by Germany, imports to Sweden have decreased from 3,250 tons in 1913 to 1,303 tons in 1920.

By a majority of 2,231, members of the SALTMAKERS' FEDERATION, which includes Cheshire, Worcester and Middlesbrough, refused to accept a reduction of 2d. per hour for labourers, and 11 per cent. for piece-workers, and the strike notices expired on August 13. A similar reduction was made in April, and they contend that economic conditions do not warrant a further reduction. The total membership of 4,136 includes a number of women and boys who did not vote.

The Home Office gives notice that a provisional regulation has been made in pursuance of Section 2 of the Rules Publication Act, 1893, that no person shall supply or procure or offer to supply or procure any of the drugs to which the DANGEROUS DRUGS ACT applies to or for any person in the Isle of Man, except to, or for, a person licensed for the purpose by the Lieutenant-Governor of the Island, nor to, or for, any person so licensed except in accordance with the terms and conditions of such licence.

The Guatemalan Government is seeking to encourage the increase in production and USE OF INDUSTRIAL ALCOHOL by exempting from taxation its manufacture for use in the production of heat, light, and power, and removing taxes from alcohol used in the manufacture by authorised distilleries of such products as varnish, ether, medicinal extracts, and other chemical and pharmaceutical products, except perfumery. A large part of the raw material which could be derived from the sugar industry is now wasted.

TANNING EXTRACTS as produced by the Forestal Land Timber & Railway Co, were touched upon by Baron d'Erlanger in his speech at the recent meeting of the company. He pointed out that from the point of view of an industrial company making tanning extracts, the Forestal Land rested to-day on a much stronger and sounder basis than ever before. Their capacity for making extract in the Argentine was greater than it had ever been. They had acquired large factories in New York, where they made extracts in a liquid form. They had acquired a large interest in a Thames Ditton factory, where they made liquid extract, and they had lately established a branch in South Africa.

The terms were issued on Monday as a White Paper of a licence granted to Oilfields of England, Ltd., of Worcester House, Walbrook. The licence is to SEARCH AND BORE FOR PETROLEUM near Newark, County of Nottingham, and will continue in force for two years, subject to renewal. The sites of the borings or workings are to be subject to the approval of the Secretary for Mines. It is provided that the licensee shall not by advertisement, prospectus, or otherwise make any statement directly or by implication that the Government or any Government Department have expressed any opinion as to whether the area is from its geological formation or otherwise one in which petroleum is likely to be obtained.

The programme has been issued of the autumn meeting of the INSTITUTE OF METALS to be held at Birmingham under the presidency of Eng. Vice-Admiral Sir George Goodwin, on September 21-23. There will be a general meeting on the morning of September 21 in the hall of the Municipal Technical School, at which the Lord Mayor of Birmingham will deliver an address of welcome. The remainder of the morning and the whole of the morning session of September 22 will be devoted to papers dealing with the constitution and properties of various metals and alloys, and, so far as time permits, each paper will be followed by a brief discussion. In addition to the formal meetings, there will be excursions to various works in or near Birmingham, and on the afternoon of Wednesday, September 21, a visit will be paid to the University of Birmingham. The guests will be received by the Vice-Chancellor, Sir Gilbert Barling, Bart., and an address delivered by the Principal, Mr. C. Grant Robertson. Full details of hotel accommodation, railway arrangements, &c., are given in the programme, which can be obtained from the Secretary, the Institute of Metals, 36, Victoria Street, S.W. 1.

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Patent Literature

Abstracts of Complete Specifications

166,191. CHLORINE GAS, METHOD OF AND APPARATUS FOR MEASURING A SMALL FLOW OF. W. Paterson, Windsor House, Kingsway, London, W.C.2. Application date, August 1, 1917.

The apparatus is for controlling a small flow of chlorine gas in the case of the sterilisation of water or other like operation. Chlorine gas from a source *a* passes through a filter *d* and reducing valve *e* to an absorber (not shown), in which water is treated with chlorine. The supply of gas is controlled by a device *o*, consisting of a U-tube containing a liquid such as sulphuric acid, which does not affect nor is affected by the

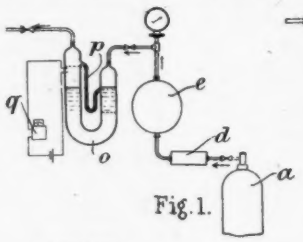

Fig.1.

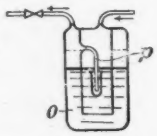

Fig.5.

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chlorine. The two sides of the U-tube are connected by a vent pipe *p*, so that the device acts as a liquid seal for the gas until the column of liquid is moved sufficiently far to uncover the vent, when a quantity of gas passes through corresponding to the volume of the displaced liquid. The actual amount of gas passed may be measured by a device which records the number of pulsations of the liquid column—*e.g.*, a float on the surface of the liquid may operate an electrical registering mechanism *q*. Other forms of liquid seal may be employed, such as that illustrated, in which the vent tube *p* dips into a small vessel submerged in the liquid.

166,202. ACTIVATED CARBONACEOUS SUBSTANCES, METHOD OF PRODUCING. E. R. Sutcliffe, 93, Church Street, Leigh, Lancs. Application date, February 1, 1919.

The object is to produce a carbonaceous substance from coal which shall be capable of absorbing gases, *e.g.*, methane and hydrocarbons, from coal gas to produce a gas rich in hydrogen. The material is also applicable for the absorption of benzol or ammonia, or for filtration. Bituminous coal is very finely ground so as to pass a 200-mesh screen and mixed with about one-third part of carbonaceous material which is already activated. The mixture is compressed into blocks and coked, and the coke is crushed to 1 in. mesh. The material is then activated by heating internally in a retort and treating with air and/or steam.

166,228. FLUORINE, RECOVERY OF AS HYDROFLUORIC ACID. E. C. R. Marks, London. (Catlin Shale Products Co., 160, Front Street, Manhattan, New York.) Application date, June 18, 1919.

The process is for the recovery of hydrofluoric acid from solutions containing fluosilicates or hydro-fluosilicates or both, which may be obtained as waste products in certain processes. The solution is treated with ferric oxide in sufficient quantity to combine with all the fluorine present. Silica is precipitated and iron fluoride remains in the solution. The reaction is preferably effected at about 93°C. The silica is filtered off and the filtrate evaporated to crystallise the iron fluoride, which is separated and then heated and treated with superheated steam. Hydrofluoric acid gas is driven off and is absorbed in water.

166,229. FILTERING, DECOLORISING OR PURIFYING PROCESSES AND DECOLORISING CARBONS THEREFOR. J. N. A. Sauer, den Texstraat 2, Amsterdam, Holland. Application date, June 20, 1919.

The process is for preparing a decolorising carbon of great absorbtive power for use in the treatment of such liquids as sugar solutions. The maximum of decolorising and purifying is usually only obtained by acidifying the liquid, but this acidification may give rise to an inversion of sugar, the cane sugar being converted into glucose and fructose (invert sugar). The object is to obtain decolorisation without the use of acid. Decolorising carbon is usually prepared by subjecting organic substances such as wood, peat, sawdust, &c., or partly carbonised substances, such as wood or peat charcoal, to heat treatment in closed retorts with hot gases such as ammonia, carbon monoxide, superheated steam, chlorine and the like. These carbons or others known as Norit and Eponit are treated with an aqueous solution of an acid in excess, at boiling point for a long time. A small quantity of acid soluble material is dissolved and part of the acid is adsorbed by the carbon, and is not removed by subsequent washing. This carbon is used in a wet condition. The acid used may be a 2·5 per cent. solution of hydrochloric acid, and the decolorising carbon prepared with it has a decolorising power from 5 to 10 times as large as bone black. The acid is used in a quantity in excess of that required to remove the soluble impurities, and the carbon is subsequently washed until the water is neutral.

166,236. UNSATURATED FATTY ACIDS, PROCESS FOR THE POLYMERISATION OF. De Nordiske Fabriker de-no-fa Aktieselskap, Karl Johansgate 41, Christiania, Norway. Application date, July 25, 1919. Addition to 127,814.

Specification No. 127,814 (*see* THE CHEMICAL AGE, Vol. I., page 257) describes a process for polymerising unsaturated fatty acids in which their salts are heated under pressure with alkali reacting agents to about 180°-214°C. It is now found that when the salts produced from fish oils and refuse oils are treated in this manner higher temperatures are required to effect polymerisation, due to the presence of albumens and other impurities, and the temperature required depends also on the concentration of the salts. To avoid the necessity for these high temperatures, the impurities are removed by boiling the soap for a few hours with excess of strong caustic soda (about 10°-12°Be.), and separating by means of common salt in the manner known in the manufacture of soaps. The soap is then heated in an autoclave for 3 to 4 hours to about 200°C. The steam outlet is then slowly opened, and steam allowed to escape until the soap contains more than 75 per cent. of fatty acids. The distillation is then stopped, and the heating continued under the same conditions for some time to complete the polymerisation.

166,249. COPPER CATALYSTS. D. A. Legg, 17, Pepys Road, Raynes Park, London, S.W. 19, and M. A. Adam, 57 and 58, Lincoln's Inn Fields, London, W.C.2. Application date, September 3, 1919.

Catalysts containing copper in the form of an oxide, or metallic copper produced by reduction, are open to objections on the ground of poor heat conduction, instability and variability, lack of coherence, difficulty of preparation, or difficulty of reactivation or recovery of the catalyst. These difficulties are avoided by the use of a catalyst consisting of cupric oxide fused and then broken up. The fusion may be effected in a reverbatory furnace lined with impervious fireclay cement, and heated to about 1 100°C. The fused oxide may or may not subsequently be reduced in a current of hydrogen. In either case the material acts as a dehydrogenating or oxidising catalyst. It is found that in the fusion of the oxide by the use of a direct blow-pipe gas-flame, the gas does not poison the catalyst. This catalyst when used for the hydrogenation of secondary butyl alcohol was found to have an efficiency of about 10 times that of the copper oxide from which it was prepared.

166,283. NITRO-COMPOUNDS, REDUCTION OF. D. A. Legg, 17, Pepys Road, Raynes Park, London, S.W.19, and M. A. Adam, 57 and 58, Lincoln's Inn Fields, London, W.C.2. Application date, December 24, 1919.

Mixtures of nitro compounds and hydrogen or other reducing gas are passed over the copper catalyst described in Specification No. 166,249 (*see* above) to reduce them to the corresponding amino compounds. In one example a copper tube is packed with the catalyst heated to about 230°C., and nitrobenzene allowed to drip into the tube at one end while hydrogen in excess is passed through in the same direction. A quantitative yield of aniline is obtained, which is colourless if the hydrogen is kept in excess. Azo benzene may be produced if

the hydrogen is not in excess. Nitro-toluenes are reduced to toluidines in the same manner. If the nitro compound is mixed with an alcohol which is capable of being dehydrogenated under the conditions which are suitable for the reduction of the nitro compound, the hydrogen removed from the alcohol combines with the oxygen of the nitro compound. Alcohols may thus be employed as the source of hydrogen, and since the dehydrogenation of alcohols is endothermic, while the reduction of nitro compounds is exothermic, the reaction will continue with little external heating when once started. In one example a mixture of three parts of secondary butyl alcohol and one part of nitro benzene is treated with the catalyst and a mixture of aniline and methyl ethyl ketone is produced. The catalyst is not readily rendered inactive, but after extended use its activity may be restored by heating in air to about 900°-1,000°C.

166,285. CATALYSTS AND PROCESSES OF MAKING THEM. C. C. Scalione, Nebraska and Massachusetts Avenue, Washington, D.C., U.S.A., and J. C. W. Frazer, 315, Druid Hill Avenue, Baltimore, Md., U.S.A. Application date, January 7, 1920.

The object is to produce a catalyst by which oxidising reactions which usually require a high temperature up to red heat may be effected at a comparatively low temperature, or even at atmospheric temperature. The catalyst consists of one or more oxides of metals such as manganese, cobalt, copper, iron, bismuth, lead and silver. These oxides are prepared by precipitation in as fine a state of division as possible by known processes, and freed from water, including all or part of the water of hydration at a temperature not exceeding 250°C. In one example manganese dioxide is prepared by treating a dilute solution of permanganic acid with oxalic acid filtering and drying. Other examples are given of the preparation of copper oxide and cobalt oxide. When a mixture of oxides such as those of manganese and silver is required, manganese dioxide paste is suspended in water and silver nitrate added. Silver oxide is then precipitated by adding sodium hydroxide solution, and the solid material filtered off, washed and dried at 130°C. Other examples of mixed oxides are also given. These catalysts are suitable for the oxidation of gases and vapours such as carbon monoxide, ammonia, sulphur dioxide, aldehydes, alcohol, toluene, &c. In order that the reaction may take place at ordinary temperature it is necessary that the catalyst should be dried until all occluded moisture and most of the water of hydration are eliminated, and the gases must also be dry. The catalyst may be used as a porous agglomerate, or broken into porous granules.

166,289. CHROMIC OXIDE AND SODIUM SULPHIDE, PROCESS FOR THE MANUFACTURE OF—FROM SODIUM CHROMATE. C. J. Head, Norfolk House, Laurence Pountney Hill, London. Application date, January 15, 1920.

When chromic oxide is obtained from sodium chromate by mixing with sulphur and heating in air, the chromic oxide is usually contaminated with sulphur, so that it is rendered unsuitable for the manufacture of high-grade chromium alloys. It is now found that this may be avoided by mixing sodium chromate with the correct molecular proportions of sulphur and carbon and heating to a dull red heat in a retort or muffle. The reaction is: $2Na_2CrO_4+2S+5C=Cr_2O_3+2Na_2S+5CO$. The mixture is lixiviated with water to dissolve out the sodium sulphide, and the chromic oxide is separated by filtration, washed, dried, and calcined. The sodium sulphide solution may be evaporated to dryness.

166,297. VAT DYESTUFFS, MANUFACTURE OF. F. W. Atack, 57, Dale Street, Manchester, and J. Anderson, 5, Albany Place, St. Andrews, Fife. Application date, February 11, 1920.

The process is for treating 2-amino-anthraquinone with caustic potash in the presence of a non-hydroxylic solvent or diluent. In one example, 10 parts by weight of 2-amino-anthraquinone are mixed with 103 parts of aniline and 20 parts of powdered caustic potash, and the mixture is heated to remove moisture, and then boiled under a reflux condenser for six hours. The solid material is filtered off at 90°C., and treated with dilute hydrochloric acid to remove aniline. The residue is extracted with dilute caustic soda and washed. The product dyes cotton green from hydrosulphite vat. In another example naphthalene is used as a solvent together with potassium nitrate as an oxidising agent, and the reaction is effected at about 250°C. A better result is obtained at the higher temperature.

166,359. INDIA RUBBER, GUTTA PERCHA AND THE LIKE, PURIFICATION OF. C. H. Gray, of The India Rubber, Gutta Percha & Telegraph Works Company, Ltd., Silvertown, London, E. Application date, April 15, 1920.

The object is to purify indiarubber or gutta percha from sand and like mineral impurities which are too fine to be removed by passing the hot material through gauze screens. The raw material is first washed and then passed between pressure rollers to press it into thin sheets. These sheets are then treated with hydrofluoric acid solution of 8-30 per cent. strength which dissolves the sand. Alternatively the material may be treated with hydrofluoric acid gas in the presence of water, or may be treated with the acid while undergoing treatment such as rolling or kneading in a machine. The material is subsequently washed with water or with a dilute alkaline solution to remove the hydrofluoric acid.

166,396. PERBORATES, PROCESS FOR MANUFACTURING BY ELECTROLYSIS. H. G. C. Fairweather, London. (From Fredriksstad Elektrokemiske Fabrikes A/S., Fredriksstad, Norway.) Application date, May 7, 1920.

In the usual process for manufacturing perborates by electrolysis of a borate solution it is found that the formation of perborate gradually decreases. This decrease may be avoided by adding a cyanogen compound, such as sodium cyanide, to the electrolyte, in the proportion of about 0·3 gm. to 4 gm. per litre. In an example a solution containing soda and borax is treated with sodium cyanide and electrolysed at a temperature of 12°C.–14°C. until nearly saturated with perborate. The perborate is then crystallised out and the liquor again treated with sodium cyanide and again electrolysed.

NOTE.—Abstracts of the following specifications which are now accepted appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention: 130,608 (Resan Kunstharzerzeugungs Ges.), relating to artificial resin, *see* Vol. I., p. 478; 141,720 (E. Bennecke), relating to conversion of certain fatty acids or glycerides into oleic-like acids, *see* Vol. II., p. 699; 143,185-7 (M. Melamid), relating to artificial resins, *see* Vol. III., p. 137; 145,053-6-7 (Akt.-Ges. für Anilin, Fabrikation), relating to ortho-oxy-azo-dyestuffs, *see* Vol. III., p. 242; 146,212 (British Cellulose and Chemical Manufacturing Co., Ltd.), relating to cellulose ester compositions, *see* Vol. III., p. 321; 146,872 (Farbwerke vorm. Meister Lucius & Bruning), relating to substantive azo-dyestuffs, *see* Vol. III., p. 381.

International Specifications not yet Accepted

165,063. NICKEL STEEL. P. F. Cowing, 1, St. Nicholas Terrace, New York; and H. F. Chappell, 177, Broadway, New York. International Convention date, June 16, 1920.

Nickel-copper matte is bessemerized, roasted, and reduced to form a nickel-copper alloy. Alternatively, the matte is bessemerized, partly roasted and leached to extract part of the copper, and the leached residue reduced, with or without further roasting, to a nickel-copper alloy. This alloy is used as the anode in a dissolving electrolyte of ferrous chloride and nickel chloride, and copper is removed from the solution by electrolysis. Nickel and iron are deposited on the cathode when the solution of nickel and iron chlorides is electrolysed, and the solution remaining is used for treating a further quantity of nickel-copper alloy. The nickel and iron deposit is used in making nickel steel.

165,071. ELECTROLYTIC GAS GENERATION. Elektrizitäts-Akt.-Ges. vorm. Schuckert & Co., 94, Landgrabenstrasse, Nuremberg, Germany. International Convention date, June 14, 1920.

Sheet iron electrodes 1 are bent over into loops 2 at the top having lateral openings 3, and the electrodes are enclosed in bags of asbestos cloth 9 which are open at the bottom. The terminals 5, to which the electrodes are welded, are arranged alternately at opposite ends of the cell, and are of such width that adjacent electrodes are in contact. The electrodes carry tubes 4 at alternate ends, which pass through the bags 9 into compartments *G*, *H* at the ends of a bell 12. The gases which collect in the chambers *G*, *H* are pure, and that which passes through the bags 9 collects in the central space *F* of the bell 12 and escapes through the pipe 16 to the atmosphere.

If hydrogen only is required, the anodes need not be provided with the bags 9, and the oxygen collects in the space *F*. The bell 12 is supported by insulating rails 18 on the terminals

FIG.1.

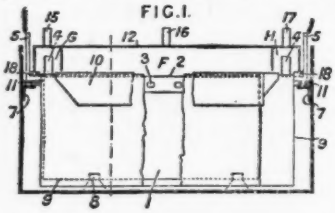
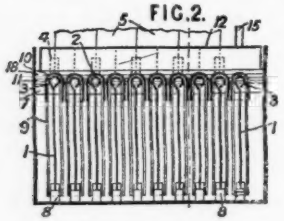


FIG.2.



165,071

5, and the latter on insulating rails 11 on brackets 7 carried by the cell.

165,076. HYDROCARBONS, CATALYTIC OXIDATION OF. Barrett Co., 17, Battery Place, New York (assignees of J. M. Weiss, 210, West 110th Street, New York, and C. R. Downs, Cliffside, N.J., U.S.A.). International Convention date, June 18, 1920.

Toluene vapour and a gas containing oxygen are passed over a catalyst of vanadium oxide at 400°-550°C. to obtain maleic acid or its anhydride, benzaldehyde, and benzoic acid, with possibly some fumaric acid. If naphthalene is substituted for toluene, a mixture of phthalic anhydride, naphthoquinone, and maleic acid is obtained, while anthracene yields anthraquinone and maleic acid. Maleic acid is also obtained when using xylene, methylnaphthalene, fluorene, or acenaphthene.

165,082. ELECTROLYSIS. Soc. d'Electro-Chimie et d'Electro-Metallurgie, 2, Rue Blanche, Paris. International Convention date, June 18, 1920.

Iron, cast iron, or steel, coated with a film of copper is used as the cathode when depositing metals by electrolysis. The iron is coated with copper by dipping into a copper salt containing free acid, with or without alcohol, or by electrolysis. The metal deposited on the copper is easily detached together with the copper.

165,083. DYES. Farbenfabriken vorm. F. Bayer & Co., Leverkusen, near Cologne, Germany. International Convention date, June 14, 1920.

One or two molecular parts of diazotised anthranilic acid or its derivatives, or one molecular part of the above and one molecular part of any diazo compound, are coupled with 5 : 5′-dioxy-2 : 2′-dinaphthylamine-7-7′-disulphonic acid, and the resulting dye is treated with copper or a copper compound. Examples are given of copper compounds derived from the following dyes: monoazo dye from 4-chlor-2-aminobenzoic acid; disazo dyes from anthranilic acid, anthranilic acid and 4-chlor-2-aminobenzoic acid, anthranilic acid and aniline, anthranilic acid and 4-chlor-2-aminophenol; trisazo dye from anthranilic acid and anthranilic acid-azo-cresidine. These copper products give red-violet, violet, and blue shades on cotton.

165,084. DRUGS. Chemische Fabrik vorm. Sandoz, Basle, Switzerland. International Convention date, June 12, 1920.

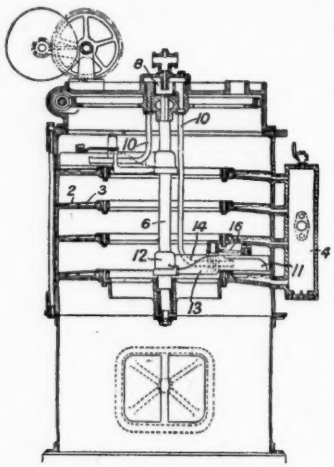
Gall acids which are only slightly soluble in water are dissolved in alcohol and treated with an equimolecular quantity of hexamethylene tetramine in the minimum amount of alcohol. Alternatively, the gall acids are ground with a strong solution of hexamethylene tetramine in water, or the two powdered constituents are agglomerated. The solvent is removed *in vacuo*. The product is soluble in water.

165,085. ACETALDEHYDE. Soc. Anon. de Produits Chimiques Etablissements Maletra, Petit Quevilly, Seine Inférieure, France. International Convention date, June 15, 1920. Addition to 140,784.

Specification 140,784 (*see* THE CHEMICAL AGE, Vol. II., p. 615) describes a process for producing acetaldehyde by passing acetylene into aqueous acid solutions containing a mercury catalyst. The spent reaction liquor is now regenerated by evaporating or heating to remove aldehyde, and then adding iron filings to precipitate mercury. The ferrous salt is reoxidised by electrolysis, and the liquor is added to the mercury residue.

165,094. EVAPORATING LIQUIDS. K. L. E. Thunholme, 21, Västragatan, Orebro, Sweden. International Convention date, June 21, 1920.

The apparatus is for evaporating liquids, such as waste sulphite lye, to dryness. A feeding device 8 is mounted on a rotating shaft 6, and liquid is distributed by pipes 10 on to thin horizontal plates 2. The plates 2 form the covers for a



165,094

number of heating elements through which steam is circulated in tortuous passages 3, from a supply chamber 4. The shaft 6 is provided with arms 13 adjustably supported by spring arms 16 which are pivoted to the arms 14 carrying the pipes 10, and the arms 13 carry blades 11 in front of the pipes 10, which remove the dried material. The material is swept into the central opening and discharged.

LATEST NOTIFICATIONS.

167,462. Process for the purification of oils and fats. Goslings, N August 3, 1920.

167,463. Process for the purification of oils and fats. Goslings, N. August 3, 1920.

167,464. Mechanically-operated furnaces for roasting pyrites or like ores. Manufacture de Produits Chimiques Du Nord Etablissements Kuhlmann. August 5, 1920.

167,469. Electrolysis of solutions and Apparatus therefor. Hooker Electrochemical Co. August 5, 1920.

167,475. Process and apparatus for obtaining smelted metal from pulverised materials. Nenegre, J. T. August 3, 1920.

167,487. Expression of vegetable oils from the natural products containing the same. Lobell, W. August 3, 1920.

Specifications Accepted, with Date of Application

138,127 and 147,531. Coke ovens and the like. American Coke & Chemical Co. July 11 and August 12, 1919.

139,488. Solvents, Method of recovering. G. P. Lunt. April 7, 1916.

140,784. Acetaldehyde from acetylene, Process for the production of. Soc. Anon. de Produits Chimiques (Etablissements Maletra). March 24, 1919.

144,658. Yellow colouring matters for dyeing animal fibres, Manufacture and production of. Badische Anilin u. Soda Fabrik. April 14, 1914.

145,523. Sulphurised dyestuffs, Manufacture of. Akt.-Ges. für Anilin-Fabrikation. January 21, 1914.

146,133. Aluminate of lime, Processes for the preparation of—for the manufacture of pure alumina. Soc. Electro-Metallurgique Française. March 7, 1916.

153,606. Terpin hydrate, Process for preparing. R. Marchand. November 10, 1919.

157,152. Gas reactions under high pressure. Device for effecting. K. A. F. Hiorth. July 2, 1915.
159,153. Di-substituted 2-4-diketo-tetra-hydro-oxazoles, Process for the preparation of. Soc. Chimique des Usines du Rhone, anciennement Gilliard, P. Monnet & Cartier. February 16, 1920.
166,929. Metals, Separation and recovery or winning of. J. J. Collins. February 24, 1920.
166,934. Trinitrotoluol, Reduction of. E. Bielouss. March 25, 1920.
166,961. Sulphur-burning furnaces and the like. T. A. Clayton. April 23, 1920.
166,971. Hydrolysis, Processes of—particularly the splitting of fats and oils. P. J. Fryer & Catalpo, Ltd. April 24, 1920.
166,989. Hydrocarbon oils, Means for treating. E. F. Engelke. April 27, 1920.
167,041. Graphite electrodes for use in electrolysis, Manufacture and production of. C. L. Higgins, D. A. Pritchard and United Alkali Co., Ltd. June 7, 1920.
167,066. Aralkyl esters of 2-phenylquinoline-4-carboxylic acid, Manufacture of. O. Imray (*Society of Chemical Industry in Basle*). July 5, 1920.

Applications for Patents

Eisenwerkges. Maximilianshütte. Process for treatment of phosphorus compounds for manurial purposes. 21,170. August 9.
Farbwerke vorm. Meister, Lucius & Brüning. Manufacture of aliphatic dialkylaminoakyl compounds. 21,567. August 13. (Germany, August 13, 1920.)
Gawalowski, A. Process for production of synthetic camphor. 21,369. August 11. (Austria, April 19.)
James, R. W. (*Eisenwerkges. Maximilianshütte.*) Process for treatment of phosphorus compounds for manurial purposes. 21,170. August 9.
Kulas, C. Process for manufacture of resinous products of condensation from phenol and formaldehyde. 20,969. August 8.
Laing, B. Distillation of carbonaceous materials. 21,183. August 9.
Lilly, C. H. Fermentation glycerine. 21,149. August 9.
Nielsen, H. Distillation of carbonaceous materials. 21,183. August 9.
Pauling, K. Process for manufacture of resinous products of condensation from phenol and formaldehyde. 20,969. August 8.
Plauson's (Parent Co.), Ltd. (*Plauson.*) Extraction of shale, &c. 20,968. August 8.
Riedel, A. Process for protection of apparatus in the preparation of ammonium chloride. 21,235. August 10. (Germany, August 13, 1920.)
Siemens-Schuckertwerke. Apparatus for condensing mercury vapour in metal-vapour rectifiers. 21,365. August 11. (Germany, August 19, 1920.)
Stacey, F. Dynamo-electric machines for producing oxides of nitrogen. 21,342. August 11.
Techno-Chemical Laboratories, Ltd. Evaporation of liquids. 21,264. August 10.
Thomas, J. and Thomson, R. F. Colouring matters of the naphthalene series. 19,849. July 23.
Walker, G. E. Fractional distillation of crude naphtha. 21,321 August 11.
Webster, J. P. B. Distillers of Shale, &c. 19,499. July 20.
West, J. H. Production of solid products from ammonia gas. 20,331. July 28.
Wilson, A. H. Extraction of titanium-dioxide and alumina from titaniferous bauxite. 20,258. July 28.
Withers, J. S. (Lanphier). Measuring calorific value of gas. 18,379. July 6.

Exports of SOAP FROM FRANCE during the first quarter of this year were as follows: Perfumed, 593 metric tons; other, 7,623 metric tons. The quantities for the first three months of 1920 were 820 metric tons and 6,086 metric tons respectively.

Three U.S. patents on the MANUFACTURE OF SELENIUM OXYCHLORIDE have been granted to Dr. Victor Lenher, professor of chemistry at the University of Wisconsin; the chemical is now being manufactured on a commercial scale. The discovery of selenium oxychloride was first announced by Dr. Lenher at the St. Louis meeting of the American Chemical Society in April, 1920.

A paper read before the French Academy of Science describes a discovery made by a M. Mailhe, who claims to have found a means of MANUFACTURING MOTOR-SPIRIT from linseed and other vegetable oils, his method consisting of passing the vegetable oil over a special apparatus which deprives the oil of its water and hydrogen. The resultant volatile product is then passed over nickel which, it is claimed, renders it in all respects similar to petrol.

Industrial Combination in Germany

The Sichel Group

THE British Commercial Secretary at Cologne (Mr. C. J. Kavanagh) has forwarded to the Department of Overseas Trade the following particulars of the activities of the Sichel Group:—

"The firm Julius Sichel & Co., in Mayence, was founded more than 100 years ago and was chiefly occupied in the merchant iron business. When the Lorraine and Luxemburg iron ore fields were opened up and large new plants were erected, this firm founded a branch in Luxemburg in 1901 which so developed itself in 10 years that it actually became the head office of the undertaking. The depot business in Mayence was formed into an independent company which goes under the name of Sichel & Co., G.m.b.H., and was essentially a merchant iron business, and the mother company merely retained its legal office in Mayence. The first extension of the concern consisted in the acquisition of the firm E. & L. Gillain in Esch on the Alzette (Luxemburg), which was directed as an independent concern. The three merchant companies in Luxemburg, Mayence and Esch formed really the basis of the undertaking, the success of which was well supported by the interests which this company had taken up in forming connexions with the Swiss Carbide works, whose products in Lorraine and Luxemburg found a very good market. In 1911, a new carbide works was erected in Thonon (Upper Savoy), in which the capital was provided largely by Luxemburg and Alsace-Lorraine interests, and in the foundation of this company Sichel & Co. first appear as producers.

"After the treaty of Peace came into force, the concern was reorganised. The chief office in Luxemburg was formed into an independent Luxemburg limited liability company under the name of 'Comptoir des Fers et Metaux S.A.' with a share capital of 3 million francs. The branch office in Esch on the Alzette was also formed into an independent company called the 'Quincaillerie d'Esch S.A.' with a share capital of 1½ mill. francs. At the same time numerous old concerns of similar charcter were acquired in Germany and Switzerland. The depreciation of the German currency which reacted on the Sichel shares caused a brisk speculation on the market, so much so that the shares at one time on the Frankfurt Bourse were quoted at 2,000 per cent. when the mark in Switzerland stood at 5 cents. The high value of the shares benefited the Sichel Company to a great extent, and enabled them to acquire further interests, amongst which are to be named Chemische Fabriken Worms A.-G., in Frankfurt (Main), Suddeutsche Oelwerke J. Grotzinger and Company, Freiburg (Baden), Chemische Fabrik fur Huttenprodukte A.G., Dusseldorf Oberkassel, Gewerkschaft Duren, &c. In order to ensure their supplies of raw material and their ultimate refining, this concern either acquired or participated in other undertakings.

"The company is stated to have interests on the Rhine and its canals, and it is also said that they are in negotiation at the present time with one large Rhine shipping concern. The activities of the company are particularly centred in the winning, working up, and merchanting of iron and metals as well as chemical and metallurgical products, and they are exporters to European and oversea markets.

"The participation or connexions with large consumers of iron and metals such as the A. G. Verzinkerei and Eisenkonstruktion vorm. Jak. Hilgers in Rheinbrohl, Hein. Lehmann and Company in Dusseldorf, Gebr. Schondorff A. G. Dusseldorf, &c., necessitated in their turn fusions with fuel producing interests, and latterly the company has acquired the Braunkohlengewerkschaft Duren, the Gewerkschaft Maria Gluck in Bruhl near Cologne, where briquettes are manufactured.

"The financial developments have been assisted by acquiring majority interests in the Deutsche Palastina Bank, whose head office has been removed from Berlin to Frankfurt, and which now goes under the name of Westbank A.G. A characteristic feature of the Sichel Group is their central organisation in Switzerland. The A.G. fur Industriewerte in Lucerne, which has at present a capital of 12·5 mill. Swiss francs, is purely a holding Company and is directed by prominent personalities of Switzerland and other foreign countries.

Monthly Market Report and Current Prices

Our Market Report and Current Prices are exclusive to THE CHEMICAL AGE, *and, being independently prepared with absolute impartiality by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., may be accepted as authoritative. The prices given apply to fair quantities delivered ex wharf or works, except where otherwise stated. The weekly report contains only commodities whose values are at the time of particular interest or of a fluctuating nature. A more complete report and list are published once a month. The current prices are given mainly as a guide to works managers, chemists, and chemical engineers; those interested in close variations in prices should study the market report.*

British Market Report

THURSDAY, August 18.

The better tendency we have recently indicated continues, although it must be admitted on the other hand that so far there has not been a very great increase in the actual volume of business transacted. Values generally still continue in buyer's favour, and the fresh decline in the German exchange has led to renewed weakness in the case of several products.

Export business is without feature, and only small business is coming to hand.

General Chemicals

ACETONE is firm, but small business is passing.

ACID ACETIC is quiet, and the price is a shade easier.

ACID CITRIC continues slow of sale.

ACID FORMIC has been in slightly better request, and the price is without change.

ACID OXALIC is again easier on Continental offerings, and business is very limited.

ACID TARTARIC remains quiet with only a nominal change in price.

AMMONIUM CHLORIDE is slightly firmer, and Continental works are reported to be well sold ahead.

BARIUM CHLORIDE continues dull and uninteresting.

BLEACHING POWDER.—This article is stagnant, and the market is quite idle on export account.

FORMALDEHYDE is a little firmer, without change in price.

IRON SULPHATE only moves off slowly at last quoted figures.

LEAD ACETATE is dull and lifeless, and is inclined to weaken.

LITHOPONE continues firm with better business to report.

POTASSIUM BICHROMATE is in fair request at makers' figures.

POTASSIUM CARBONATE.—This product continues dull and slow of sale.

POTASSIUM CAUSTIC continues in buyer's favour.

POTASSIUM CHLORATE has been in a shade better request at last quoted figures.

POTASSIUM PERMANGANATE has maintained its value, but is only moving off slowly.

POTASSIUM PRUSSIATE has been in small request at last quoted price.

SODIUM ACETATE is in slightly better demand, and the price is inclined to be firmer.

SODIUM BICHROMATE is easier, and is under the influence of resale parcels.

SODIUM CAUSTIC has been in slightly better demand, but buyers continue to expect concessions on makers' prices.

SODIUM HYPOSULPHITE is in fair request, and the price is firm.

SODIUM NITRITE is dull and uninteresting.

SODIUM PHOSPHATE continues weak with little demand.

SODIUM PRUSSIATE is a shade weaker, but a fair volume of business has been transacted.

SODIUM SULPHIDE continues a quiet market.

TIN SALTS are all inclined to favour buyers.

Coal Tar Intermediates

There has been a slightly better feeling in this market, and some fair sized orders have been placed. Business generally, however, still leaves a good deal to be desired.

ALPHA NAPHTHYLAMINE is steady, with a small business to report.

ANILINE OIL AND SALT have been in slightly better demand.

BENZIDINE BASE would seem to be a shade easier.

BETA NAPHTHOL is without feature.

DIMETHYLANILINE is in fair demand.

DIPHENYLAMINE remains dull and slow of sale.

NITROBENZOL is very firm, and in good request.

PARANITRANILINE.—The increase in price has been maintained.

RESORCIN continues steady, but with only small business to report.

SALICYLIC ACID remains firm at last quoted values.

Coal Tar Products

90's BENZOL continues to be scarce, and it is reported that as high as 3s. 2d. on rails has been paid for prompt delivery. For London delivery they sell at lower prices.

PURE BENZOL is still quoted at 3s. 3d. per gallon on rails.

CREOSOTE OIL.—There is a fairly good demand and much better prices have been paid; to-day's values are 8¾d. in the North, 9d. and 9¼d. in the South.

CRESYLIC ACID is in fair demand, without changing price.

SOLVENT NAPHTHA is still somewhat scarce, but without change in value.

NAPHTHALENE is without change.

PITCH.—The market is idle, but makers are fairly firm in their ideas of price. To-day's quotations may be taken at 80s. to 82s. 6d., London; 75s. to 80s., f.o.b., East Coast; and 70s. to 75s., f.o.b., West Coast. German competition is making itself felt in this article.

Sulphate of Ammonia

The demand for home trade remains fairly steady. Export business is quiet, and very little business has been reported during the last week.

French Market Report

Trade continues very quiet and the market still remains mainly under the influence of re-sellers. It is not expected that there will be any substantial improvement before the end of September.

ACETONE is fairly active at 550 frs.
ACID ACETIC, 80 per cent., is quiet at 330 frs.
ACID BORACIC is 340 frs.
ACID LACTIC, 50 per cent., is idle at 255 frs.
ACID OXALIC is slightly more active, 430 frs.
ALUM CHROME, 210 frs.
AMMONIUM PHOSPHATE is in fair demand at 350 frs.
BLEACHING POWDER is idle at 55 frs.
CALCIUM CHLORIDE is 47 frs.
LEAD ACETATE WHITE is fairly active at 250 frs.
POTASH BICHROMATE, 380 frs.
POTASH PERMANGANATE, 11 frs. per kilo.
POTASH PRUSSIATE, 5 frs. per kilo.
SODIUM BICHROMATE, 250 frs.
SODIUM CAUSTIC, 76 per cent., 80 frs.
SODIUM HYPOSULPHITE, 95 frs.
SODIUM METABISULPHITE, 500 frs.
SODIUM PHOSPHATE, 140 frs.
SODIUM PRUSSIATE, 3 frs. per kilo.
SODIUM SULPHIDE, CONCENTRATED, 95 frs.

All the above are per 100 kilos, unless otherwise stated.

German Market Report

The market has been extremely strong during the last month, and owing to the decline in the exchange prices in some directions have advanced sharply. Many works are now fully occupied for several months ahead and are declining fresh business except at still higher levels.

ACID ACETIC, 80 per cent., 10 marks.
ACID OXALIC, 15 marks.
ALUM LUMP, 2·50 marks.
ALUMINA SULPHATE, 14/15 per cent., 2·50 marks.
AMMONIUM BROMIDE, 19 marks.
AMMONIUM CARBONATE, 5 marks.
AMMONIUM PHOSPHATE, 18 marks.
ARSENIC, WHITE, 10·50 marks.
CALCIUM CHLORIDE, 70/75 per cent., 2·50 marks.

CHROME ALUM is very active at 7 marks.
COPPER SULPHATE is in slow demand at 6 marks.
FORMALDEHYDE, 40 per cent., 22 marks.
IRON SULPHATE, 65 marks per 100 kilos.
POTASSIUM PERMANGANATE, 27 marks.
SODIUM SULPHIDE, concentrated, 5 marks.
All the above are per kilo, unless otherwise stated.

Current Prices

Chemicals

	per	£	s.	d.		£	s.	d.
Acetic anhydride	lb.	0	2	1	to	0	2	2
Acetone oil	ton	87	10	0	to	90	0	0
Acetone, pure	ton	90	0	0	to	95	0	0
Acid, Acetic, glacial, 99-100%	ton	60	10	0	to	62	10	0
Acetic, 80% pure	ton	47	0	0	to	49	0	0
Arsenic	ton	95	0	0	to	100	0	0
Boric, cryst	ton	65	0	0	to	68	0	0
Carbolic, cryst. 39-40%	lb.	0	0	6½	to	0	0	7
Citric	lb.	0	2	4	to	0	2	5
Formic, 80%	ton	65	0	0	to	67	10	0
Gallic, pure	lb.	0	4	0	to	0	4	3
Hydrofluoric	lb.	0	0	8½	to	0	0	9
Lactic, 50 vol	ton	35	0	0	to	37	10	0
Lactic, 60 vol.	ton	40	0	0	to	42	10	0
Nitric, 80 Tw.	ton	38	0	0	to	40	0	0
Oxalic	lb.	0	0	8	to	0	0	8½
Phosphoric, 1.5	ton	50	0	0	to	53	0	0
Pyrogallic, cryst	lb.	0	7	9	to	0	8	0
Salicylic, Technical	lb.	0	1	0	to	0	1	2
Salicylic, B.P.	lb	0	1	4	to	0	1	5
Sulphuric, 92-93%	ton	8	0	0	to	8	10	0
Tannic, commercial	lb.	0	3	6	to	0	3	9
Tartaric	lb.	0	1	4	to	0	1	5½
Alum, lump	ton	18	0	0	to	18	10	0
Alum, chrome	ton	37	10	0	to	40	0	0
Alumino ferric	ton	9	0	0	to	9	10	0
Aluminium, sulphate, 14-15%	ton	12	0	0	to	13	0	0
Aluminium, sulphate, 17-18%	ton	15	0	0	to	16	0	0
Ammonia, anhydrous	lb.	0	2	0	to	0	2	2
Ammonia, .880	ton	43	0	0	to	45	0	0
Ammonia, .920	ton	30	0	0	to	32	10	0
Ammonia, carbonate	lb.	0	0	4	to		—	
Ammonia, chloride	ton	60	0	0	to	65	0	0
Ammonia, muriate (galvanisers)	ton	50	0	0	to	52	0	0
Ammonia, nitrate	ton	55	0	0	to	60	0	0
Ammonia, phosphate	ton	80	0	0	to	85	0	0
Ammonia, sulphocyanide	lb.	0	3	0	to	0	3	0
Amyl acetate	ton	150	0	0	to	160	0	0
Arsenic, white, powdered	ton	47	0	0	to	48	0	0
Barium, carbonate, 92-94%	ton	12	10	0	to	13	0	0
Barium, chlorate	lb.	0	0	11	to	0	1	0
Chloride	ton	16	0	0	to	17	0	0
Nitrate	ton	50	0	0	to	52	0	0
Barium Sulphate, blanc fixe, dry	ton	28	0	0	to	30	0	0
Sulphate, blanc fixe, pulp	ton	16	0	0	to	16	10	0
Sulphocyanide, 95%	lb.	0	1	6	to	0	1	0
Bleaching powder, 35-37%	ton	14	0	0	to		—	
Borax crystals	ton	32	0	0	to	35	0	0
Calcium acetate, Brown	ton	8	0	0	to	9	0	0
,, Grey	ton	10	0	0	to	11	0	0
Calcium Carbide	ton	27	0	0	to	28	0	0
Chloride	ton	12	10	0	to	13	0	0
Carbon bisulphide	ton	60	0	0	to	62	0	0
Casein, technical	ton	85	0	0	to	90	0	0
Cerium oxalate	lb.	0	3	6	to	0	3	9
Chromium acetate	lb.	0	1	1	to	0	1	3
Cobalt acetate	lb.	0	11	0	to	0	11	6
Oxide, black	lb.	0	16	0	to		—	
Copper chloride	lb.	0	1	3	to	0	1	6
Sulphate	ton	28	0	0	to	29	0	0
Cream Tartar, 98-100%	ton	125	0	0	to	130	0	0
Epsom salts (*see* Magnesium sulphate)								
Formaldehyde 40% vol	ton	90	0	0	to	92	10	0
Formusol (Rongalite)	lb.	0	3	9	to	0	4	0
Glauber salts, commercial	ton	5	5	0	to	5	10	0
Glycerine, crude	ton	70	0	0	to	72	10	0
Hydrogen peroxide, 12 vols.	gal.	0	2	8	to	0	2	9
Iron perchloride	ton	45	0	0	to	50	0	0
Iron sulphate (Copperas)	ton	4	0	0	to	4	5	0
Lead acetate, white	ton	47	10	0	to	49	0	0
Carbonate (White Lead)	ton	43	0	0	to	46	0	0
Nitrate	ton	48	0	0	to	50	0	0
Litharge	ton	32	10	0	to	34	0	0
Lithopone, 30%	ton	27	0	0	to	29	0	0
Magnesium chloride	ton	14	0	0	to	15	0	0
Carbonate, light	cwt.	2	10	0	to	2	15	0
Sulphate (Epsom salts commercial)	ton	10	10	0	to	11	10	0
Sulphate (Druggists')	ton	15	10	0	to	17	10	0
Manganese, Borate	ton	70	0	0	to	75	0	0
Sulphate	ton	70	0	0	to	75	0	0
Methyl acetone	ton	85	0	0	to	90	0	0
Alcohol, 1% acetone	ton	120	0	0	to	125	0	0
Nickel sulphate, single salt	ton	65	0	0	to	66	0	0
Nickel ammonium sulphate, double salt	ton	67	0	0	to	68	0	0
Potash, Caustic	ton	30	10	0	to	31	0	0
Potassium bichromate	lb.	0	0	9	to		—	
Carbonate, 90%	ton	38	0	0	to	40	0	0
Chloride	ton	36	0	0	to	38	0	0
Chlorate	lb.	0	0	5	to	0	0	5½
Meta bisulphite, 50-52%	ton	120	0	0	to	125	0	0
Nitrate, refined	ton	45	0	0	to	47	0	0
Permanganate	lb.	0	1	2	to	0	1	4
Prussiate, red	lb.	0	2	0	to	0	2	1
Prussiate, yellow	lb.	0	1	2½	to	0	1	3
Sulphate, 90%	ton	31	0	0	to	33	0	0
Salammoniac, firsts	cwt	3	5	0	to		—	
Seconds	cwt	3	0	0	to		—	
Sodium acetate	ton	25	0	0	to	26	0	0
Arsenate, 45%	ton	60	0	0	to	62	0	0
Bicarbonate	ton	10	10	0	to	11	0	0
Bichromate	lb.	0	0	6½	to	0	0	7
Bisulphite, 60-62%	ton	27	10	0	to	30	0	0
Chlorate	lb.	0	0	5½	to	0	0	5½
Caustic, 70%	ton	24	0	0	to	24	10	0
Caustic, 76%	ton	25	0	0	to	25	10	0
Hydrosulphite, powder, 85%	lb.	0	2	3	to	0	2	6
Hyposulphite, commercial	ton	15	0	0	to	16	0	0
Nitrite, 96-98%	ton	40	0	0	to	42	0	0
Phosphate, crystal	ton	23	0	0	to	25	0	0
Perborate	lb.	0	1	8	to	0	1	9
Prussiate	lb.	0	0	6¾	to	0	0	7
Sodium Sulphide, crystals	ton	17	0	0	to	18	0	0
Sulphide, solid, 60-62%	ton	23	0	0	to	24	0	0
Sulphite, cryst	ton	15	0	0	to	16	0	0
Strontium carbonate	ton	80	0	0	to	85	0	0
Strontium Nitrate	ton	84	0	0	to	90	0	0
Strontium Sulphate, white	ton	7	10	0	to	8	10	0
Sulphur chloride	ton	41	0	0	to	42	0	0
Sulphur, Flowers	ton	13	0	0	to	14	0	0
Roll	ton	13	0	0	to	14	0	0
Tartar emetic	lb.	0	1	5	to	0	1	6
Tin perchloride, 33%	lb.	0	1	2	to	0	1	4
Tin Perchloride, solid	lb.	0	1	5	to	0	1	7
Protochloride (tin crystals)	lb.	0	1	5	to	0	1	6
Zinc chloride, 102 Tw.	ton	21	0	0	to	22	10	0
Chloride, solid, 96-98%	ton	50	0	0	to	55	0	0
Oxide, 99%	ton	40	0	0	to	42	0	0
Dust, 90%	ton	47	10	0	to	50	0	0
Sulphate	ton	21	10	0	to	22	10	0

Coal Tar Intermediates, &c.

Alphanaphthol, crude	lb.	0	3	6	to	0	3	9
Alphanaphthol, refined	lb.	0	4	0	to	0	4	3
Alphanaphthylamine	lb.	0	2	6	to	0	2	8
Aniline oil, drums extra	lb.	0	1	5	to	0	1	6
Aniline salts	lb	0	1	6	to	0	1	7
Anthracene, 40-50%	unit	0	0	8½	to	0	0	9
Benzaldehyde (free of chlorine)	lb.	0	4	3	to	0	5	0
Benzidine, base	lb.	0	6	0	to	0	6	6
Benzidine, sulphate	lb.	0	6	6	to	0	7	0
Benzoic acid	lb.	0	2	3	to	0	2	6
Benzoate of soda	lb.	0	2	3	to	0	2	6
Benzyl chloride, technical	lb.	0	2	0	to	0	2	3
Betanaphthol benzoate	lb.	0	7	0	to	0	7	3
Betanaphthol	lb.	0	2	6	to	0	2	9
Betanaphthylamine, technical	lb	0	9	6	to	0	10	0
Croceine Acid, 100% basis	lb	0	4	6	to	0	5	0
Dichlorbenzol	lb	0	0	9	to	0	0	10
Diethylaniline	lb.	0	6	9	to	0	7	6
Dinitrobenzol	lb.	0	1	5	to	0	1	6
Dinitrochlorbenzol	lb.	0	1	5	to	0	1	6
Dinitronaphthaline	lb.	0	1	6	to	0	1	8
Dinitrotoluol	lb.	0	1	8	to	0	1	9
Dinitrophenol	lb.	0	2	9	to	0	3	0
Dimethylaniline	lb.	0	4	0	to	0	4	3
Diphenylamine	lb.	0	4	6	to	0	4	9
H-Acid	lb.	0	9	0	to	0	10	0
Metaphenylenediamine	lb.	0	5	6	to	0	5	9
Monochlorbenzol	lb.	0	0	10	to	0	1	0
Metanilic Acid	lb.	0	7	0	to	0	7	3

	per	£	s.	d.		£	s.	d.
Monosulphonic Acid (2:7)	lb.	0	7	0	to	0	7	6
Naphthienic acid, crude	lb.	0	4	0	to	0	4	
Naphthionate of Soda	lb.	0	4	3	to	0	4	6
Naphthylamin-di-sulphonic-acid	lb.	0	4	9	to	0	5	0
Nitronaphthalene	lb.	0	1	4	to	0	1	5
Nitrotoluol	lb.	0	1	3	to	0	1	4
Orthoamidophenol, base	lb.	0	18	0	to	1	0	0
Orthodichlorbenzol	lb.	0	1	1	to	0	1	2
Orthotoluidine	lb.	0	2	3	to	0	2	
Orthonitrotoluol	lb.	0	0	10	to	0	1	0
Para-amidophenol, base	lb.	0	12	0	to	0	12	6
Para-amidophenol, hydrochlor	lb	0	12	6	to	0	13	0
Paradichlorbenzol	lb.	0	0	7	to	0	0	8
Paranitraniline	lb.	0	4	6	to	0	4	9
Paranitrophenol	lb.	0	2	9	to	0	3	0
Paranitrotoluol	lb.	0	5	9	to	0	6	0
Paraphenylenediamine, distilled	lb.	0	12	0	to	0	13	0
Paratoluidine	lb.	0	7	0	to	0	7	6
Phthalic anhydride	lb.	0	3	9	to	0	4	0
Resorcin, technical	lb.	0	7	0	to	0	7	6
Resorcin, pure	lb.	0	9	6	to	0	10	0
Salol	lb.	0	2	9	to	0	3	0
Sulphanilic acid, crude	lb.	0	1	4	to	0	1	6
Toluidine, base	lb.	0	6	6	to	0	7	0
Toluidine, mixture	lb.	0	2	6	to	0	2	9

Metals and Ferro Alloys

The following prices are furnished by Messrs. Miles, Mole & Co., Ltd., 101, Leadenhall Street, London, E.C.

	per	£	s.	d.		£	s.	d.
Aluminium, 98-99%	ton	119	0	0	to	122	0	0
Antimony, English	ton	37	0	0	to	40	0	0
Copper, Best Selected	ton	70	0	0	to	71	0	0
Ferro-Chrome, 4-6%	ton	36	0	0	to	37	0	0
Ferro-Chrome Manganese, loose	ton	18	0	0	to	20	0	0
Silicon, 45-50%	ton	16	0	0	to	18	0	0
Tungsten, 75-80%	lb.	0	1	9	to	0	1	10
Lead Ingot	ton	23	10	0	to	24	0	0
Lead Sheets	ton	36	0	0	to	37	0	0
Nickel, 98-99%	ton	190	0	0	to	190	0	0
Tin	ton	155	10	0	to	158	0	0
Spelter	ton	25	6	0	to	25	6	0

Structural Steel

	Per	£	s.	d.		£	s.	d.
Angles and Tees	ton	14	0	0	to	16	0	0
Flats and Rounds	ton	14	0	0	to	15	0	0
Joists	ton	14	0	0	to	15	0	0
Plates	ton	15	0	0	to	16	0	0
Rails, heavy	ton	14	0	0	to	14	10	0
Sheets, 24 Gauge	ton	18	10	0	to	20	0	0
Galvanized Corrd. Sheets	ton	22	0	0	to	23	0	0
Zinc Sheets	ton	34	0	0	to	35	0	0

Alsatian Potash Mine

THE Paris financial correspondent of the *Daily Telegraph* writes: "The importance from an economic standpoint and also as a means of enriching France in money from the potash mines of Alsace is well known, and the following information is interesting. The District Law Court of Mülhouse has allowed one-half of the sequestered potash mines, that is to say, 5,450 shares out of 10,000, to M. Henry Koch, of Guebviller, who purchased these shares in October, 1918, and January, 1919. M. Koch is administrator of the German company Deutsche Kalkwerke, at Berniterode Thuringen. The property of this German company was sequestered. Thus half of the potash basin is withdrawn not only from sequestration but from the French State, which under the law of March 26 last had repurchased all the sequestered mines. The costs of the lawsuit are charged personally to the sequestrator, M. Helmer, Senator, for having refused, notwithstanding the orders of the Public Prosecutor of the Republic, to recognise the rights of M. Koch.

Following on the meetings held recently between representatives of Scottish Oils, Ltd., and representatives of the SHALE MINERS AND OILWORKERS, a further conference of the parties was held in Edinburgh last week, when the question of continuing operations at those places now working and restarting those works and mines now idle was under consideration. A counter-suggestion was made by the workmen's representatives of a general modification of wages in the industry to enable operations to be fully resumed.

Japanese Dyestuffs Industry

Decline in Production

PRIOR to the outbreak of war the dye manufacturing industry in Japan was non-existent, and most of the demand had to be supplied by the dyestuffs imported from Germany. The import of dyestuffs from Germany in 1913 amounted to 6,000 tons, valued at 8,000,000 yen. The stoppage of import on account of the outbreak of hostilities and the consequent rise in price encouraged the development of the dye industry in the country.

Reviewing the industry since its establishment, the "Yokohama Chamber of Commerce Journal" states that the number of factories increased from 50 to 70 between 1915 and 1917. The production of dyes in Tokio-fu in 1918, when the industrial boom was at its height, reached 3,500,000 yen in value, but with the termination of the war the industry received a severe blow, and most of the factories have been compelled either to suspend or curtail work.

On October 1, 1920, the revised import duty on dyestuffs was put into operation, but this has had little effect in reviving the industry. The output of dyes in Tokio prefecture since 1917 is shown below:—

	Yen.	Rate to total production per cent.
1917	2,909,252	26·8
1918	3,520,860	14·3
1919	1,792,810	26·0
1920 (to May)	1,503,841	20·5

As will be seen from the foregoing figures, the production of dyestuffs in Tokio prefecture for 1917 reached nearly 3,000,000 yen in value, despite the fact the industry was started after 1916. This is due to the great demand for dyes and the consequent rise in price, though the cost of production was comparatively small. In 1918 the output increased to 3,520,000 yen, but the conclusion of the Armistice brought about a marked decline in the prices of dyestuffs and the dye industry in Tokio suffered a severe blow as that in other parts of the country.

In 1919 many dye manufacturers were compelled to suspend or curtail work, and the output for the year was reduced to one-half the production of the previous year. It was feared by the dye manufacturers that with the termination of the war dyestuffs from Germany would be steadily imported, but this apprehension was not realised.

Consequently some manufacturers have resumed work, and the output of dyes in Tokio-fu up to the end of May, 1920, reached 1,503,000 yen in value, showing a marked increase compared with the corresponding period of 1919. It will be noted, however, that the industry has again been adversely affected by the economic panic which set in in April, and therefore the amount of production after May must have been very small.

The manufacture of dyestuffs in Tokio-fu commenced with kryogene black, and gradually developed into the manufacture of kryogene brown, basic acid, direct mordant, and other classes of dyes. A comparison of the production between kryogene dyes and other dyes is given below:—

	Kryogene dyes.		Other dyes.	
	kin.	yen.	kin.	yen.
1918	302,922	381,500	491,677	3,522,837
1919	384,000	136,600	230,231	1,656,810
1920 (to May)	824,000	528,600	123,638	975,241

As will be gathered from the above figures, the output of kryogene dyes up to the end of May, 1919, showed a considerable increase as compared with that of 1920, while the production of other lines of dyes also showed some increase as against the corresponding period of 1919, though a marked decrease is noticeable as compared with 1918.

In the House of Commons on Thursday night the Safeguarding of Industries Bill was referred back to the House of Lords to allow the Peers to negative the amendment, and a committee was appointed to draw up reasons. Mr. Chamberlain said the Lords, by amending a Money Bill, had infringed the rights of the House of Commons.

Failure of Metallic Chemicals, Ltd.

Statutory Meeting of Creditors

STATUTORY meetings of creditors and shareholders in the compulsory liquidation of Metallic Chemicals, Ltd., 11-12, Finsbury Square, E.C., and Burry Port, South Wales, were held on Wednesday, at 33, Carey Street, W.C.

Mr. G. D. Pepys, Official Receiver, who presided, reported that the winding-up order was made on the petition of Messrs. A. Ruffer & Sons, bankers, creditors for £3,500. The company was formed in December, 1917, with a nominal capital of £60,000, subsequently increased to £100,000, and eventually to £150,000. The object was to carry out an agreement with the Holywell Standard Chemicals, Ltd., for the acquisition of certain processes, plans and specifications for £30,000, to be satisfied by the allotment of 20,000 participating preferred shares and 200,000 ordinary 1s. shares. Those shares were issued to nominees of the Holywell Standard Chemicals, Ltd. When the company was promoted there was a considerable demand for chemicals such as the company proposed to manufacture. The company acquired freehold works at Burry Port, South Wales, known as the Pembrey Copper Works, at the price of £8,000. By the end of 1918 all the available working capital of the company had been expended in connexion with the buildings and plant in course of erection. In consequence of delay in obtaining plant to carry out the proposed programme, which necessitated larger expenditure than was anticipated, it became necessary to borrow money from the company's bankers, Barclay & Co., Ltd. On May 21, 1919, a mortgage on the works was executed in favour of the bank, together with debentures covering the whole of the undertaking as security for an advance of £20,000. By June, 1919, over £16,000 had been expended on the property; £24,300 on the plant and machinery, and £5,800 on raw material. In view of the amount owing to the bankers and its further requirements an extraordinary resolution was passed in August, 1919, increasing the capital to £100,000 by creation of 40,000 10 per cent. participating preferred shares.

In November, 1919, it was reported that the first unit of oxide plant had commenced working and had yielded an excellent product, but the cost of manufacture was found to be prohibitive, owing to the absence of labour-saving devices. In order to make the production more profitable extensive alterations and additions were made and automatic machinery was installed.

The sales for the six months ended June, 1920, amounted to £49,400, but there appeared to have been a loss of nearly £500 owing to a deal in spelter which depreciated heavily. Some improvement was then carried out in the process, which it was said would effect great economy in working costs. In September, 1920, the bank requested repayment of the amount due to them, but they agreed to continue the loan for a time, and in view of the requirements to complete reorganisation of the plant, the financial position had again to be considered. It was accordingly resolved further to increase the capital to £150,000. The additional shares were, however, never issued owing to disagreements between the directors. On December 20, 1920, the bank appointed Mr. David Roberts, incorporated accountant, of Swansea, as their receiver and manager. Mr. Roberts had since died and his partner, Mr. A. E. Goskar, was now acting in his stead. The bank had obtained an order for the sale of the property.

The statement of affairs lodged in the liquidation was also a matter of disagreement between certain of the directors. The assets appearing in the books of the company at certain figures were now shown in the statement of affairs at a great deal less. The difference was extraordinary. The plant and machinery standing in the books at £35,200 was valued in the statement of affairs at £3,000. The processes, plans, and specifications appearing in the books at £30,000 were not valued at all. The freehold property and buildings shown in the books at £28,200 appeared in the statement at only £5,000. The total assets were valued at £11,390, and the first claim upon them was that of the bank for £21,000. It was clear, therefore, that there was very little prospect of any dividend for the unsecured creditors, whose claims amounted to about £18,000, and still less of any return to the shareholders.

The liquidation was left in the hands of the Official Receiver.

Swiss Electro-Chemical Production

Writing from Geneva, a special correspondent of *The Times* states that the chief market for Swiss aluminium, calcium carbide and ferro-silicium is Germany, and to a smaller extent Italy and the countries formerly belonging to Austria. During the war the output of German electric furnaces was strongly developed, especially by power stations, electro-chemical works and the various groups interested in lignite mines. So long as coal was cheap those industries could easily compete with Swiss products, not only in Germany, but also in other Continental countries. A serious crisis consequently overtook Swiss producers, and most of their factories were closed during 1920. Fortunately, however, the high price of imported coal resulted in such an increased production of hydro-electric current all over Switzerland that the electrochemical works soon began to recover. To this export statistics for January to May bear witness. The export of aluminium, which during the first five months of 1920 averaged only 406 tons, rose to 633 tons. This figure is even higher than the average of 1913.

The Swiss export of calcium-carbide amounted in 1913 to a monthly average of 2,500 tons, during the first five moonths of last year to only 283 tons; but in January to May of 1921 to 665 tons. This figure is remarkable, seeing that the leading Swiss concerns have also factories in Germany. When coal prices there are back to the level of the international market, it seems unlikely that Germany will be able to make calcium-carbide more cheaply than Switzerland.

German Chemical Industry

ACCORDING to a recent report issued by the Prussian Ministry of Commerce, the difficulties attending sales in the German chemical industry have become more acute; a slight improvement, however, is reported in connexion with pharmaceutical products. Business in dyes has suffered severely from the crisis prevailing in the markets of the world and from the effect of the sanctions. The supply of raw materials has been fully sufficient for all requirements, and the prices of raw products, half-manufactured products and manufactured lines were satisfactory, but only few orders are being booked by factories and dealers. Business was especially poor in preparations for laboratory and scientific purposes, owing to the lack of orders from the Upper Silesian coal-mining districts, and to the scarcity of money in the university laboratories. Wholesale chemical houses report a slightly brisker demand for some products, and especially for exportation to England. Prices still shape in a very unsatisfactory manner; export business is being reduced steadily by protective Customs duties and the anti-dumping laws of certain foreign countries.

Secret of Copper Tempering

MR. WALTER BUNTON, of Laporte, Indiana, is reported to have discovered a process of tempering copper, which has been a lost art for many generations. It is stated that after reading an account of how a Roman metallurgist had discovered the secret of hardening copper, he at once began experiments, which have resulted in the new process. His patent has been purchased by the United States Steel Corporation, says a cable to the Paris edition of the *Chicago Tribune*, for £250,000, and a royalty of 1d. for every pound of material manufactured. The process is being kept secret until foreign patents can be completed.

UNITED PREMIER OIL & CAKE.—The United Premier Oil & Cake Co. during 1920 realised a net profit of £152,933. After allowing for debenture interest, &c., and writing off preliminary expenses (£9,675), there remained a balance of £114,198. To this is added £45,674 brought forward, making £159,872. A final dividend of 5 per cent., less tax, was paid on the ordinary shares, in June last, making a total dividend of 12½ per cent., less tax, for the year. The balance carried forward is £42,941. For the period from May 13, 1919, to December 31, 1919, the net profits were £181,456. The dividend on the ordinary shares totalled 10 per cent., free of tax, for the period, or at the rate of approximately 23 per cent. per annum gross. The dividend for the year under review has been paid on a capital of £750,000, whereas the dividend for the previous period was paid on £500,000.

Company News

STANDARD CHEMICAL CO.—The accounts for the 15 months ended March 31, 1921, show a profit of $340,327, and against this there remain to be charged items amounting to $507,295, resulting in a deficit of $166,967. Depreciation reserve has been taken at $200,000. Interest on debentures accounted for $58,558, and on bank loans and loss on exchange $10,675, and repairs to plants $140,630. The total liabilities have been reduced by $264,909.

BROKEN HILL PROPRIETARY CO.—The net profit for the year to May 31 last was £351,331, after deducting depreciation £161,756, and debenture interest £76,391. The sum of £1,215,318 has been expended on plant at Newcastle Works. Permanent certificates for the issue of 420,000 shares of £1 each are ready for delivery, and can be exchanged at the Company's offices, 3, Great Winchester Street, E.C.2, against provisional certificate endorsed as fully paid, or provisional certificate with banker's receipts for the instalment moneys, or allotment letter, together with bankers' receipts for the application and instalment moneys.

B. LAPORTE, LTD.—The net profit for the 12 months to June 30 last was £7,485, as against £14,205 last year, and after paying a 6 per cent. ordinary dividend there is £1,161 less at £3,132 to go forward. This rate of dividend is below the average of recent years, when the distribution ranged from 37½ to 22½ per cent.; but the present dividend is payable on a capital of £60,000, and involves a payment of only £4,712 less than the 22½ per cent. which was paid last year on £48,000. The company's works are now fully equipped, a sum of £28,766 having been expended on the completion of plant and buildings during the year. No amount is included in the accounts, in anticipation of a refund of excess profits duty, which, it is expected, will be considerable.

UNITED PREMIER OIL & CAKE CO.—The net profit for the year 1920 amounted to £152,933. The sum of £9,675 is written off preliminary expenses account. Interest on debentures required £24,000, and an instalment of sinking fund for the 6 per cent. debentures £5,060. To the balance has to be added £45,673 brought in, making an available sum of £159,872. After payment of preference share dividend and an interim of 7½ per cent., less income tax, on December 13 last, the directors paid a further interim dividend of 5 per cent., less tax, on June 30 last. This will be confirmed as a final dividend, making 12½ per cent. for the year, less income tax, as compared with 10 per cent., tax free, for 1919. A balance of £42,941 is carried forward, subject to the percentage of profits due to the directors.

LOW TEMPERATURE CARBONISATION, LTD.—In a circular dated August 10 the secretary states that at meetings held on July 25 and August 9 the shareholders unanimously adopted the resolutions increasing the capital and creating 150,000 "A" preference shares. At the first meeting the chairman promised to send the shareholders a short report of the progress of the work at Barnsley. This work ar Barnsley has for the past five months been directed by the syndicate formed by Close Brothers & Co., Ltd., who arranged the finance by means of which the operations at Barnsley have been successfully continued. The circular adds: Negotiations are well advanced for the sale of rights and licenses for the United Kingdom, America, Canada, Japan, India, Australia, New Zealand, and elsewhere. The present favourable position will be taken advantage of to the full, and further finance will be forthcoming in order to enable the company to extend and develop its operations in various parts of the world, but your directors feel that before taking steps to place the present issue of 50,000 shares through stockbrokers and others, the shareholders should have the first opportunity of participating in future prosperity by applying for them on the same basis (namely, £1 per share) as those shares already under option to the syndicate formed by Messrs. Close Brothers & Co., Ltd. It has therefore been resolved to issue immediately 50,000 of these "A" shares at £1 each to the shareholders, and applications are invited accordingly. The participation right is one "A" preference share for every 15 complete shares held. Renunciation forms are issued. The shares will be payable 2s. 6d. on application (of which 1s. 3d. is premium) and 2s. 6d. on allotment (of which 1s. 3d. is premium), and the balance at intervals of not less than one month. A summarised report on the position to date, furnished by Close Brothers & Co., Ltd., appears on another page.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

LOCALITY OF FIRM OR AGENT	MATERIALS.	REF. No.
Winnipeg ...	Lubricants; oils; glassware; chemicals; dyes; glues	124
Milan ...	Pharmaceutical products ...	133
Buenos Aires	Glassware	143
Buenos Aires	Sulphuric acid and aluminium sulphate. Department of Overseas Trade, 35, Old Queen Street, London, S.W.1	—

Tariff Changes

ANTIGUA.—A new preferential Customs Tariff came into force on June 20, and the complete text thereof may be seen on application to the Tariff Section, Department of Overseas Trade, 18, Queen Anne's Gate, S.W.1. The preferential rates apply to all goods which are consigned from, and are the growth, produce, or manufacture of the United Kingdom and of Canada, and the Ordinance contains a provision that the Governor-in-Council may, with the approval of the Legislature, extend the application of these rates to goods from any part of the British Dominions which shall accord preference to imports from Antigua.

BARBADOS.—The new preferential Customs Tariff which came into operation on July 1 provides, *inter alia*, that, for the purpose of assessing the amount of the *ad valorem* duty payable on any goods, the value thereof (ascertained in accordance with the Act) shall be converted into British currency at the market rate of exchange on the day of arrival of the importing ship. The *ad valorem* rate of duty for goods entering under the General Tariff is 20 per cent., and under the British Preferential Tariff 10 per cent. The Tariff may be seen on application to the Tariff Section, Department of Overseas Trade, 18, Queen Anne's Gate, S.W.1.

KENYA COLONY.—As from August 10 the *ad valorem* import duty is increased to 20 per cent. with the exception of perfumery, which is subject to a duty of 30 per cent.; chemicals, scientific instruments, petroleum, liquid fuel, paint, soap and turpentine, 10 per cent. The same provisions apply to the Uganda Protectorate and the Tanganyika Territory.

SOUTH AFRICA.—The Customs and Excise Duties Amendment Act, 1921, imposes increased duties on various imports, but there may be a refund of the whole or any part of the Customs Duty that would otherwise have been paid under the 1920 Act on the following: Pigments, filling agents and vulcanising accelerators; zinc white, zinc sulphide, antimony sulphide (yellow and red), alumina, magnesium carbonate, calcined magnesia, lithopone, vegetable black, carbon black, Prussian blue, white lead, ebonite powder and emarex (natural pitch); in bulk; rubber substitutes, viz., vulcanised vegetable oils; in bulk; rubber compounding oils, viz., aniline oil, rosin oil, and vaseline; in bulk; rubber solvents, viz., benzine (benzol), coal tar, naphtha, westrosol, westron, carbon disulphide; in bulk; and vulcanising agents, viz., sulphur chloride, in jars of not less than one imperial gallon.

BULGARIA.—All imports will (from August 9) be subject to the "general" rates of Customs and other duties in force on that date, until new commercial treaties are concluded.

FINLAND.—The export duty on tar, resin, pitch, turpentine and methyl alcohol is now 0·05 Finnish marks per kilog.

FRANCE.—The prohibition on the export of oilcake, except under licence, which was provisionally suspended in March last, has again been brought into operation.

GERMANY.—As from July 28 last the importation into Germany of madder roots, quercitron, and other dyeing plants and parts of such, even salted, dried, kiln dried, roasted, ground, or otherwise reduced; dye woods in blocks or roots, viz., logwood, fustic and Brazil wood is permitted without licence. Thickened sulphite lyes may be exported without licence.

LUXEMBURG.—As from July 21, and until further notice Thomas' slag, ground or not, may be exported without licence.

TRADE GUIDE

CHEMICAL AGE

THE Trade Guide is a compact and handy form of reference to a representative list of firms engaged in various branches of the Industry. In most cases fuller particulars may be found by referring to the displayed advertisement elsewhere.

Analytical Reagents

THE BRITISH DRUG HOUSES LIMITED — BDH — LONDON

Research Chemicals

THE BRITISH DRUG HOUSES, LTD.,
Graham St., City Rd.,
LONDON, E.C.

Asbestos

Pioneers of the World's Asbestos Industry

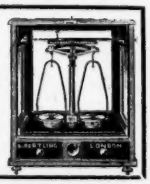
BELL'S UNITED ASBESTOS Co., Ltd.

Southwark Street, LONDON, S.E.1
(Established 1871)

Balances

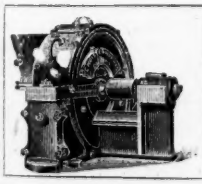
Oertling

LONDON



Chemical Plant

BENNETT SONS & SHEARS, Ltd.
43, SHOE LANE,
LONDON, E.C.4.



CHRISTY & NORRIS,
CHELMSFORD LTD. (England),
Specialise in
GRINDING MACHINERY FOR ALL MATERIALS
Send for Catalogue,
State Requirements.

Centrifuges
Autoclaves
Sterilizers, etc.

CHARLES HEARSON & Co., Ltd.
WILLOW WALK, BERMONDSEY, S.E.

Carbons

NORIT.

THE decolorising carbon and Refining Agent.
30 Times adsorptive capacity of bone char.
In five grades.

JOSEPH BAKER SONS & PERKINS LTD.,
Head Offices: KINGSWAY HOUSE, KINGSWAY, W.C.2
Telegrams: "Bakers, London."

Disinfectants

ALL GRADES, PERCENTAGES AND CO-EFFICIENTS
ALSO
LIQUID SOAPS

W. GARDINER & CO.
83, Broad Street, Camlachie, Glasgow

Drums and Tins

JOHN FEAVER,
TOWER BRIDGE ROAD, S.E. 1.

TINS for
PRESERVED PROVISIONS and FOODSTUFFS.
CANS for VARNISH, PAINT.
DRUMS & TAPERS for OILS, VARNISH.
Samples and Prices on application.

Essential Oils

VIOFLOR REG.

Covers Objectionable Smells in Manufacture of White Spirit Turpentine Substitutes, etc.

CREPIN & DOUMIN, Ltd.
15, COOPERS ROW, E.C.3

Evaporators

KESTNER PATENT

EVAPORATORS
ACID ELEVATORS
FANS
EXTRACTORS
CRYSTALLIZERS

Kestner Evaporator & Engineering Co. Ltd
5, Grosvenor Gardens, Westminster, S.W.1.

MULTIPLEX AND SIMPLEX FILM EVAPORATORS.
DISTILLING PLANT.
DRYING PLANT OIL HARDENING PLANT.

BLAIR CAMPBELL & McLEAN Ltd GLASGOW

MAKERS OF ALL TYPES OF CHEMICAL PLANT.

Filterpresses

P.F.C. — THE RESULT OF 60 YEARS EXPERIENCE

PREMIER FILTERPRESS Co. LTD.

FINSBURY PAVEMENT HOUSE, LONDON, E.C.2

Furnaces

Cut your Fuel Costs *by adopting* **Wilton's** (1920 *Pat.*) **Furnaces**

Oil Burners can be fitted
Write for Booklet:—
Chemical Eng. & Wilton's Pat. Furnace Co., Ltd. (Dept. C.A.F.)
76, Victoria St., London, S.W 1. Victoria 2417

General Chemicals

CHEMICALS, FERTILISERS
TAR & AMMONIA PRODUCTS

CHAS. PAGE & Co., LTD.
47-51, KING WILLIAM ST. LONDON, E.C.

Glassware

SCIENTIFIC GLASS WARE — DURO GLASS R. LONDON — 40/43, NORFOLK ST., STRAND, W.C.2.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

London Gazette

Bankruptcy Information

NAGELS & CO., 51, Fenchurch Street, London, E.C., chemical merchants. Date of receiving order, August 10, creditor's petition. First meeting, August 25, 11.30 a.m., Bankruptcy Buildings, Carey Street, London, W.C.2. Public examination, November 25, 11 a.m., Bankrutpcy Buildings, Carey Street, London, W.C.2.

Company Winding Up Voluntarily

MORGAN & CO. (MAESTEG) CHEMISTS, LTD.—William Morgan, 24, Neath Road, Maesteg, Glamorgan, liquidator. Meeting of creditors, 16, Commerical Street, Maesteg, Wednesday, August 24, 1921, 10 a.m.

Mortgage and Charge

[*NOTE.—The Companies Consolidation Act, of 1908, provides that every Mortgage or Charge, as described therein, created after July 1, 1908, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges which would, if created after July 1, 1908, require registration. The following Mortgages and Charges have been so registered. In each case the total debt, as specified, in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced since such date.*]

BRITISH CELLULOSE & CHEMICAL MANUFACTURING CO., LTD. (late BRITISH CELLULOSE & CHEMICAL MANUFACTURING (PARENT) CO., LTD.), London, S.W.—Registered August 4, £3,000 debentures, part of £500,000; general charge; also registered August 8, £13,500 debentures, part of £500,000; general charge. *Nil. December 23, 1920.

Bills of Sale

[*The undermentioned information is from the Official Registry. It includes Bills of Sale registered under the Act of 1882 and under the Act of 1878. Both kinds require re-registration every five years. Up to the date the information was obtained it was registered as given below; but payment may have been made in some of the cases, although no notice had been entered on the Register.*]

DAVIES, JOHN ARTHUR, 44, Central Park Avenue, Wallasey (of property at 25, Harehills Road, Leeds), analytical chemist. Filed August 15, £50.

SHERRINGTON, JERVIS, The Elms, 10, Bromborough Road, Lower Bebington, glycerine distiller. Filed August 9, £30.

County Court Judgment

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

NAGELS & CO., 51, Fenchurch Street, chemical merchants. £19 4s. 1d. June 8.

New Companies Registered

The following list has been prepared for us by Jordan & Sons, Ltd., company registration agents, 116 and 117, Chancery Lane, London, W.C.2:—

BERTRAM LANE, LTD., Grenville House, High Street, Portishead, Somerset.—Manufacturing, wholesale and retail chemists and druggists. Nominal capital, £500 in 500 shares of £1 each. Directors: B. Lane, Grenville House; Mrs. Evelyn D. L. Lane; G. M. Trevaskis, 5, Adelaide Terrace. Qualification of directors, £1.

BOWRING (C. T.) & CO. (WEST HARTLEPOOL), LTD., Winchester House, Old Broad Street, E.C.2.—Basic slag grinders and manufacturers and dealers in manures and fertilisers. Nominal capital, £13,500 in 13,500 shares of £1 each. Directors to be appointed by subscribers. Qualification of directors, 100 shares.

DENNIS (L.) & CO., LTD.—Manufacturers of all kinds of chemicals and allied products. Nominal capital, £15,000 in 10,000 preference shares and 5,000 ordinary shares of £1 each. Directors to be appointed by subscribers. Qualification of directors, £500. Subscribers: L. Dennis, Kathleen Dennis, W. Bannister.

FOSBROOK, LTD., Midland Bank Chambers, Market Place, Wednesbury, Stafford.—Manufacturerrs of tar macadam. Nominal capital, £5,000 in 5,000 ordinary shares of £1 each. Directors: W. Fosbrook (senior), W. Fosbrook (junior). Qualification of directors, 500 shares.

MOORE & HOLE, LTD., Billiter House, Billiter Street, E.C.3. Merchants and brokers in vegetable and mineral oils, turpentine, &c. Nominal capital, £10,000 in 10,000 ordinary shares of £1 each. Directors: C. Moore, H. H. Frost.

PENMAENMAWR & TRINIDAD LAKE ASPHALT CO., LTD.—To acquire various undertakings. Nominal capital, £150,000 in 150,000 shares of £1 each. Directors: C. H. Darbishire, A. E. Johnson, H. W. Darbishire, G. Mitchell, T. G. Marriott, F. M. Bond, J. D. Gregory.

PLAUSON'S MILL & FILTER PRESS.—Capital, £100,000 in 95,000 participating cumulative preference shares of £1 each and 100,000 ordinary shares of 1s. each, have been filed at Somerset House, pursuant to Section 274 of the Companies (Consolidation) Act. The company was formed to acquire from Plauson's (Parent Co.), Ltd., the benefit of certain inventions within the U.K., and to adopt an agreement with the company, H. Plauson & J. A. Vielle. The British address is at Seymour House, 17, Waterloo Place, Pall Mall, S.W.1, where S. C. Phelp is authorised to accept service of process and notices on behalf of the company. The directors are: W. Perkins Bull, K.C. (chairman, Overseas Estates, Ltd.); the Hon. Hugh Fletcher Moulton; A. Lyle-Samuel, M.P.; E. W. Jodrey (director, Plauson's (Parent Co.), Ltd., and other companies); A. W. Sparling (partner in Macfarlane & Sparling); and J. A. Viells (director, Eviana Syndicate, Ltd., and other companies). The file number is 1,985F.

STOW, NORMAN V., LTD., Chemists, druggists, oil and colourmen. Nominal capital £3,500 in 3,500 ordinary shares of £1 each. Directors: N. V. Stow, G. B. Purser, managing director, A. Sampson, R. Cubitt. Qualification of directors, £100. Managing director, £1,000.

TEXTILE & CHEMICAL PRODUCTS CO., LTD., 105, George Street, Moss Side, Manchester.—Manufacturers and dealers in aniline, colours, paints, &c. Nominal capital, £1,000 in 1,000 ordinary shares of £1 each. Directors to be appointed by subscribers. Qualification of directors, 1 share.

DISTILLERS' CO., LTD.—It is reported that negotiations are proceeding on the part of the Distillers' Co., Ltd., for the purchase of distilleries at Bo'ness and Gartloch which are at present owned by James Calder & Co., Ltd., of Edinburgh. By their purchase of Calder distilleries in Scotland the Distillers' Co., Ltd., will gain complete possession of the yeast and grain spirit business north of the Tweed. Calders, Ltd., has a capital of £250,000 fully paid, and the purchase price is said to be about three-quarters of a million. Bo'ness and Gartloch distilleries are the chief distilleries acquired.

SEAGER, EVANS & CO., LTD.—The report for the year ended March 31 last states that the loss on trading amounted to £152,607. The balance brought forward was £59,883, out of which the final dividend for the previous year absorbed £28,106 and the interim dividend for the current year £10,756, leaving a net amount of £21,021. To this has been added £87,277, representing the total amount transferred to reserve account from profits since 1914. Out of this the sum of £15,000 has been paid on account of excess profits duty to March, 1920, but it is anticipated that this will now be returnable to the company. The debit balance carried forward amounted to £44,308.